# VSEBINSKI OPIS PROJEKTA Z OSNOVNIMI PODATKI GLEDE FINANCIRANJA:

NASLOV PROJEKTA:

**Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva; J5-3112**

Vodja projekta: prof. dr. BOJAN GRUM

**Opis projekta:**

Za razliko od vrste drugih, najpogostejših pristopov, ki parcialno analizirajo posamezno generacijo in njeno umestitev v bivalno okolje, sosesko in družbo skozi različne spektre pripadnosti, se bomo osredotočili na medgeneracijsko sožitje in na celostno enakovredno medgeneracijsko obravnavo. Pri tem izhajamo iz hipoteze, da »*vrednotenje trajnostnega razvoja bivalnega okolja temelji na konsenzu generacij, ki skupaj tvorijo trajnostni in vzdržnosti medgeneracijski model razvoja bivalnega okolja, ki strmi k medgeneracijski blaginji*«, kar razvijamo skozi parametre socialne infrastrukture ter življenjskega zadovoljstva. Urbani prostor bomo raziskovati večplastno na poudarku interakcije med uporabniki grajenega okolja in samim grajenim okoljem. Urbanega okolja tako ne razumemo zgolj z njegove statične pozicije, temveč ga opredeljujemo kot dinamični preplet fizičnih, socialnih in psiholoških dimenzij odnosa med posameznikom in grajenim okoljem. Menimo, da je prav to temelj razvoja trajnostno razvojno naravnane stanovanjske politike, ki vodi v razumevanje trajnostnega mesta in skupnosti. Walker celo (2013) trdi, da oblikovalci stanovanjskih politik ne razumejo temeljnega pomena medgeneracijske solidarnosti, temveč ga dojemajo le kot finančno-rabni odnos. Meni, da razmišljanja in usmeritve, da so socialne investicije in izobraževanje predvsem za mlade, izhajajo iz preživele paradigme družbe treh generacij. To pa lahko povzroča nevarnost medgeneracijskega konflikta, saj s tem razdeljevalci javnih financ socialne države privilegirajo določene socialne skupine. Tako mlada kot stara generacija imata vrsto potreb, ki pa jih bo, posebno v času upočasnjene ekonomske rasti (recesije), še posebno pa v času pandemije (Covid- 19), vedno težje zadovoljiti iz virov socialne države (oz. na račun srednje generacije). To lahko vodi v konflikt med generacijami. Zato bo raziskava temeljila na pojmu medgeneracijske povezanosti ter na parametrih socialne infrastrukture in življenjskih dejavnikov, torej na povezavi med socialno infrastrukturo in blaginjo, kar odmerja nivo kakovosti življenja in dobrega počutja uporabnika. Kakovost življenja na splošno velja za pomemben kazalnik socialne trajnosti in je večdimenzionalni koncept, ki je bil ocenjen in količinsko opredeljen z uporabo številnih objektivnih in subjektivnih kazalcev. Na področju družboslovja in urbanega oz. skupnostnega načrtovanja sta življenjsko zadovoljstvo in sreča pogosto uporabljena kot kazalca subjektivne kakovosti življenja. Zadovoljstvo bivanja razumemo kot občutek zadovoljstva, ko človek z bivanjem v svoji nepremičnini in soseski doseže tisto, kar potrebuje ali si želi. Pojem kakovosti življenja, ki je danes v svetu eden dominantnih konceptov, je le stežka predstavljiv brez pojma kakovosti urbanega okolja, za katerega pa je vedno bolj značilno, da se ga oblikuje humano in naravnano k človeku. Z ambicioznim ciljem, da bi zgradili ustrezno orodje za študij vplivov parametrov socialne infrastrukture na medgeneracijsko blaginjo in kakovost uživanja bivalnega okolja, bomo razvili raziskovalni načrt mešanih metod, ki po Steinmetz-Wood idr (2019) vključuje kombinacijo kvantitativnih in kvalitativnih metod, in ga avtorji priporočajo za raziskovanje odnosov med grajenim okoljem in uporabnikom oz. njegovimi zaznavami. Raziskovalni načrt bomo nadgradili z uvedbo metode zbiranja in selekcije podatkov, metaanalize v širšem smislu z uporabo PRISMA tehnike oz. bibliometrične analize. S tem bomo uvedli nov in izviren znanstveni načrt mešanih metod, ki ga imenujemo eksplanatorni raziskovalni načrt. Razvili bomo smernice tarčnih strategij, s katerimi bomo pripomogli k razvoju medgeneracijsko stabilne, zunanjim vplivom čim manj podvrže (npr. pandemije Covid-19) ter trajnostjo vzdržne družbe.

Problem raziskovanja razčlenjujemo na pet glavnih raziskovalnih vprašanj: V(1): Kako urbano okolje skozi parametre socialne infrastrukture spodbuja zadovoljstvo uporabnika in ustvarja pogoje za razvoj raznolikih oblik življenjskega zadovoljstva in blagostanja?; V(2): Katere so neodvisne spremenljivke grajenega urbanega okolja in socialne infrastrukture, ki koreliralo s kakovostjo bivanja?; V(3): Kako se le te povezujejo z odvisnimi spremenljivkami interakcije z uporabniki?; V(4): Katere izmed zaznanih korelacij so kažejo kot ključne za doseganje medgeneracijskega sožitja?; V(5): Katere so tisti ključni parametri socialne infrastrukture, ki so pomembni za strategijo razvoja urbanega prostora, in ki lahko pripomorejo k življenjskemu zadovoljstvu?

To bo prvi tovrsten raziskovalni pristop v Sloveniji, na podlagi katerega bomo lahko vrednotili trajnostni razvoja grajenega urbanega prostora skozi parametre socialne infrastrukture in življenjskega zadovoljstva.

**Osnovni podatki financiranja:**

Vrednost projekta 50.000,00 EUR

Trajanje projekta 3 leta s pričetkom 1.10.2021.

## SESTAVA PROJEKTNE SKUPINE S POVEZAVAMI NA SICRIS

| Institucija | Raziskovalec |
|---|---|
| NU-EPF | Bojan Grum |
| NU-EPF | David Bogataj |
| NU-EPF | Ajda Fošner |
| NU-EPF | Marjana Šijanec Zavrl |
| NU-EPF | Živa Kristl |
| INV | Alenka Temeljotov Salaj |
| INV | Bojan Grum |
| INRISK | Marija Bogataj |
| INRISK | Valerija Rogelj |
| INRISK | Eneja Bogataj |
| FF | Darja Kobal Grum |
| FF | Gregor Sočan |

# FAZE PROJEKTA IN OPIS NJIHOVE REALIZACIJE:

Projekt bo obsegal šest faz:
(1) v prvi fazi bomo identificirali neodvisne parametre socialne infrastrukture urbanega grajenega okolja, ki so usmerjeni medgeneracijsko k uporabnikom in njihovim zaznavam življenjskega zadovoljstva;
(2) v drugi fazi projekta bomo identificirali odvisne spremenljivke uporabnikov grajenega okolij ter analizirali medgeneracijske raznolikosti njihovih oblik zaznavanja dobrega počutja, življenjskega zadovoljstva, blagostanja;
(3) tretja faza bo namenjena identificiranju in preverjanju ustreznosti metrijskih karakteristik merskih instrumentov;
(4) v četrti fazi bomo izvedli kvantitativno študijo, ki bo integracija vseh dosedanjih faz in bo vključevala neodvisne in odvisne spremenljivke, ki jih bomo identificirali v predhodnih fazah. Izvedli bomo več statističnih analiz, med drugim, diskriminantne, faktorske ipd. analize;
(5) v peti fazi bomo s kvalitativno metodo izvedli kvalitativno študijo, pri kateri bomo uporabili kvalitativne tehnike zbiranja podatkov udeležencev, ki bodisi soodločajo o načrtovanju in izvedbi urbanih okolji, bodisi kakorkoli znanstveno raziskujejo prostorsko problematiko (interdisciplinaren pristop);
(6) v šesti fazi bomo razvili model vrednotenja trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva. Razvili bomo smernice tarčnih strategij, s katerimi bomo pripomogli k razvoju medgeneracijsko stabilne, zunanjim vplivom čim manj podvrže (ekonomske krize, pandemije) ter trajnostjo vzdržne družbe.

# Faze projekta:

| DP-1 | PROJEKTNI IN FINANČNI MANAGEMENT | Leto 1 | Leto 2 | Leto 3 |
|---|---|---|---|---|
| A1.1. | Postavitev eksplanatornega raziskovalnega načrta projekta študij z uporabo mešanih metod | BG, DKB, ATK, MB, DB | | |
| A.1.2. | Finančni management | BG | BG | BG |
| A1.3. | Vodenje projekta | BG | BG | BG |
| A1.4. | Pisanje vmesnih poročil; končno poročilo | BG in ostali | BG in ostali | Vsi |
| **DP-2** | **ŠTUDIJA NACIONALNIH IN MEDNARODNIH BAZ PODATKOV. LITERATURE** | **Leto 1** | **Leto 2** | **Leto 3** |
| A2.1. | Načrt metode zbiranja in selekcije podatkov, litarature iz nacionalnih in mednarodnih znastvenih baz | BG, DKB, ATK, MB, DB, ŽK, MPZ, BK, | | |
| A2.2. | Identifikacija neodvisnih spremenljivk urbanega okolja | BG, DKB, ATK, MB, DB, ŽK, MPZ, BK, | | |
| A2.3. | Izvedba metode zbiranja in selekcije podatkov | BG, DKG, GS, AF, ED | BG, DKG, GS, AF, ED | |
| A2.4. | Izvedba študije baz podatkov | BG, DKG, GS, AF, ED | BG, DKG, GS, AF, ED | |
| A2.5. | Interpretacija rezultatov | BG, DKG, ATS, BK | BG, DKB, ATK, MB, DB, ŽK, MPZ, BK, | |
| A2.6. | Diseminacija rezultatov | | | BG, DKG, ATS, DB, MB |
| **DP-3** | **METAANALIZA V ŠIRŠEM SMISLU** | **Leto 1** | **Leto 2** | **Leto 3** |
| A3.1. | Načrt metode sistematičnega pregleda | BG, DKG, GS, AF, ATS, MB, DB, BK, ŽK | | |
| A3.2. | Izvedba metode sistematičnega pregleda | BG, GS, AF, DB | BG, GS, AF, DB | BG, GS, AF, DB |
| A3.3. | Zbiranje podatkov | BG, GS, AF, DB | BG, GS, AF, DB | |
| A3.4. | Identifikacija odvisnih spremenljivk akterjev v urbanih okoljih | BG, GS, AF, DB | BG, GS, AF, DB | BG, DKG, GS, AF, ATS, MB, DB, BK, ŽK |
| A3.5. | Izvedba študije sistematičnega pregleda in bibliometrične študije | | | BG, DKG, GS, AF, ATS, MB, DB, BK, ŽK |
| A3.6. | Interpretacija rezultatov | | | BG, DKG, GS, AF, ATS, MB, DB, BK, ŽK |
| A3.7. | Diseminacija rezultatov | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| **DP-4** | **VALIDACIJSKA ANALIZA** | **Leto 1** | **Leto 2** | **Leto 3** |
| A4.1. | Selekcija merskih instrumentov na podlagi metaanlize v širšem smislu; načrtovanje izbora, sestava in prevodi vprašalnikov | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF |
| A4.2. | Načrt izvedbe validacijske analize; pilotska študija; | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF |
| A4.3. | Zbiranje podatkov za namene validacijske študije; pilotska študija za validacijo merskih pripomočkov; čiščenje podatkov; | | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF |
| A4.4. | Analiza rezultatov glede na demografske spremenljivke za potrebe validacije instrumentov | | BG, DKG, ATS, DB, MB, GS, AF | BG, DKG, ATS, DB, MB, GS, AF |

nadaljevanje tabele

| | | | | |
|---|---|---|---|---|
| A4.5. | Konfirmatorna faktorska analiza | | BG, DKG, GS, AF, BD | BG, DKG, GS, AF, BD |
| A4.6. | Eksplorativna faktorska analiza | | BG, DKG, GS, AF, BD | BG, DKG, GS, AF, BD |
| A4.7. | Analiza zanesljivosti | | BG, DKG, GS, AF, BD | BG, DKG, GS, AF, BD |
| A4.8. | Interpretacija rezultatov | | | BG, DKG, ATS, DB, MB, GS, AF |
| A4.9. | Diseminacija rezultatov | | | BG, DKG, ATS, DB, MB, GS, AF |
| **DP-5** | **KVANTITAVINA ANALIZA** | **Leto 1** | **Leto 2** | **Leto 3** |
| A5.1. | Predstavitev raziskovalnega načrta za Slovenijo in izbrane države | | BG, DKG, GS, AF, ED | |
| A5.2 | Izvajanje vzorčenja v Sloveniji in v izbranih državah (v primeru 50% financiranja vzorčenja v tujih državaj ne bo) | | BG, DKG, ATS, Db, MB, GS, AF,ATS | ATS, DB, MB |
| A5.3. | Zbiranje podatkov za namene kvantitativne študije | | BG, DKG, ATS, DB, MB, GS, AF,ATS | ATS, DB, MB |
| A5.4. | Čiščenje podatkov in vnos v ustrezne statistične pakete za obdelavo glavnih podatkov (SPSS, AMOS R-program itd.) | | BG, DKG, ATS, DB, MB, GS, AF,ATS | BG, ATS, DB, MB |
| A5.5. | Interpretacija rezultatov | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| **DP-6** | **KVALITATIVNA ANALIZA** | **Leto 1** | **Leto 2** | **Leto 3** |
| A6.1. | Selekcija merskih instrumentov na podlagi metaanalize v širšem smislu | | BG, DKG, GS, AF, ED | |
| A6.2. | Načrt izvedbe analize | | BG, DKG, ATS, Db, MB, GS, AF,ATS | |
| A6.3. | Izvedba polstrukturiranih intervjujev oz. delphi vprašalnikov | | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| A6.4 | Analiza: (1)transkripcija gradiva,(2)določanje enot kodiranja,(3)odprto kodiranje,(4)določanje ključnih kategorij,(5)korelacijsko kodiranje,(6)oblikovanje modela | | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| A6.5. | Interpretacija | | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| A6.6. | Diseminacija rezultatov | | | BG, DKG, ATS, ŽK, DB, MB, BK, GS, MŠZ, ED, VB |
| **DP-7** | **HOLISTIČNA EKSPLANATORNA ANALIZA** | **Leto 1** | **Leto 2** | **Leto 3** |
| A7.11 | Analiza skupnih rezultatov | | | vsi |
| A7.2. | Diseminacija rezultatov | | | vsi |
| **DP-8** | **SMERNICE ZA APLIKACIJO** | **Leto 1** | **Leto 2** | **Leto 3** |
| A8.1. | Aplikativno mreženje napovednikov psihofizičnega zdravja v interakciji z grajenim urbanim okoljem | | | vsi |
| A8.2. | Diseminacija rezultatov | | | vsi |

# Aktivnosti članov

| AKTIVNOSTI RAZISKOVALNE SKUPINE | 2021 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Aktivna udeležba na konferenci | Objave na konferenci | Znanstveni članek | Poglavje monografije | Monografija | Okrogla miza | Sekcija na konferenci | Drugo | Vključevanje študentov |
| Bojan Grum | | CIRRE 2021 (a, e) | | | | | | | |
| David Bogataj | | CIRRE 2021 (g, i,j) | | | | | | | |
| Ajda Fošner | | | | | | | | | |
| Marjana Šijavec Zavrl | | | | | | | | | |
| Živa Kristl | | CIRRE 2021 ( c) | | | | | | | |
| Alenka Temeljotov Salaj | | CIRRE 2021 ( b, d) | | | | | | | |
| Marija Bogataj | | CIRRE 2021 (f) | | | | | | | |
| Valerija Rogelj | | | | | | | | | |
| Eneja Bogataj | | CIRRE 2021 (h, j) | | | | | | | |
| Darja Kobal Grum | | CIRRE 2021 (a) | | | | | | | |
| Gregor Sočan | | | | | | | | | |

| Aktivnost | Naslov: | | | | | Publikacija: | str: |
|---|---|---|---|---|---|---|---|
| CIRRE 2021 | | | | | | | |
| ( a) | What estate factors could significantly affect the satisfaction of residents during pandemic Covid-19? | | | | | Book of Proceeding, CIRRE 2021 | 63-71 |
| (b) | Ethics in the use phase of building projects – a scoping review | | | | | Book of Proceeding, CIRRE 2021 | 228-243 |
| ( c) | Sustainable refurbishment of buildings and specific triggers for renovations | | | | | Book of Proceeding, CIRRE 2021 | 82-94 |
| (d) | Feasibility study of using AI-powered smart insole system to reduce back-pain among older workers | | | | | Book of Proceeding, CIRRE 2021 | 312-325 |
| ( e) | Current legislation as leverage for implementing the legality of public roads | | | | | Book of Proceeding, CIRRE 2021 | 342-364 |
| (f) | Comparison of functional regionalisation methods – geogerantological approach | | | | | Book of Proceeding, CIRRE 2021 | 365-377 |
| (g) | Guarantee Schemes for Loans to Investors In Community Social Infrastructure For Older People | | | | | Book of Proceeding, CIRRE 2021 | 378-390 |
| (h) | Overview of the social infrastructure in ten EU member states | | | | | Book of Proceeding, CIRRE 2021 | 391-410 |
| (i) | Return on investments in social infrastructure for older adults | | | | | Book of Proceeding, CIRRE 2021 | 411-431 |
| (j) | Planning the social infrastructure for sustainable development of long-term care in Slovenian urban municipalities | | | | | Book of Proceeding, CIRRE 2021 | 433-448 |

| 2022 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Aktivna udeležba na konferenci | Objave na konferenci | Znanstveni članek | Poglavje monografije | Monografija | Okrogla miza | Sekcija na konferenci | Drugo | Vključevanje študentov |
| Bojan Grum | | | | Razprave 1 (a, d) | Razprave (2) | | | | Razprave 1: Aljana Batič (EPF, PMN); Manca Štefe (EPF, PMN); Razprave 2: T.Doberšet, A.Urbančer, M.Šafran (vsi PMN 3) |
| David Bogataj | | | | | | | | | |
| Ajda Fošner | | | | Razprave 1 (b) | | | | | Niko Maučec (EPF, PMN) |
| Marjana Šijanec Zavrl | | | | | | | | | |
| Živa Kristl | | | | Razprave 1 ( c) | | | | | Martina Antobčič Kogoj (EPF, PMN) |
| Alenka Temeljotov Salaj | | | | | | | | | |
| Marija Bogataj | | | | | | | | | |
| Valerija Rogelj | | | | | | | | | |
| Eneja Bogataj | | | | | | | | | |
| Darja Kobal Grum | | | | | | | | | |
| Gregor Sočan | | | | | | | | | |

| Aktivnost | Naslov: | | | | | Publikacija: | str: |
|---|---|---|---|---|---|---|---|
| Poglavje v monografiji: TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA - RAZPRAVE 1 | | | | | | | |
| (a) | Prepoznavnost trajnostne gradnje med uporabniki grajenega prostora ter vpliv slednjega na njihovo izraženo zadovoljstvo | | | | | Razprave 1 | 4-69 |
| (b) | Analiza vplivnih dejavnikov na cene nepremičnin | | | | | Razprave 1 | 104 -126 |
| ( c) | Starejša generacija in energetska prenova nepremičnin | | | | | Razprave 1 | 70-103 |
| (d) | Medgeneracijska odnosi pri podaljšanem sobivanju mlade in srednje generacije - stanovanjska problematika | | | | | Razprave 1 | 127-179 |
| | | | | | | | |
| Znanstvena monografija: TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA - RAZPRAVE 2 | | | | | | | |
| Avtorji: | Bojan Grum | | | | | Razprave 2 | str.109 |
| | Tjaša Doberšet | | | | | | |
| | Aleš Urbanček | | | | | | |
| | Matjaž Šafrab | | | | | | |

# Izvedene aktivnosti

1. **Koordinacijski sestanek PROJEKT**

   **J5-3112 Naslov projekta:**

   **Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva**

   Evaluation of the sustainable development of the urban environment through the parameters of social infrastructure and life satisfaction
   **Št. J5-3112**

   **Vabljeni:**

| Inštitucija | Raziskovalec |
|---|---|
| NU - EPF | Bojan Grum |
| NU - EPF | David Bogataj |
| NU - EPF | Ajda Fošner |
| NU - EPF | Marjana Šijavec Zavrl |
| NU - EPF | Živa Kristl |
| INV | Alenka Temeljotov Salaj |
| INV | Bojan Grum |
| INRISK | Marija Bogataj |
| INRISK | Valerija Rogelj |
| INRISK | Eneja Bogataj |
| FF | Darja Kobal Grum |
| FF | Gregor Sočan |

   Zaradi pedagoških obveznosti se je opravičil Grega Sočan. Ostali so prisotni.
   Sestanek se je pričel ob 13.00 uri dne 30.11.2021.

   **Dnevni red:**
   Predstavitev projekta
   Predstavitev obveznosti
   Razdelitve nalog
   Razno

   Predvidi se naslednji koordinacijski sestanek v mesecu marcu 2022. V mesni sestanki se odvijajo redno, na tedenskem nivoju pod vodstvom vodje projekta.

**Zapisnik:**

1.) Vse prisotne se seznani s tem, da morajo pri svojih objavah dodati:

**ACKNOWLEDGMENTS**
This study was partially funded by the Slovenian Research Agency through the project: Evaluation of the sustainable development of the urban environment through the parameters of social infrastructure and life satisfaction, No. J5-3112.

**ZAHVALA**
Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva; št. projekta J5-3112.

2.) Raziskovalni načrt je zajet v šestih fazah**,** v katerih bomo uporabili model mešanih raziskovalnih metod:

**(1) v prvi fazi** bomo identificirali neodvisne parametre socialne infrastrukture urbanega grajenega okolja, ki se pojavljajo v različnih kulturnih okoljih (Slovenija, Norveška, Nizozemska) in ki so usmerjeni medgeneracijsko k uporabnikom in njihovim zaznavam življenjskega zadovoljstva.
Zaradi delne odobritve financiranja projekta se omejimo na Slovenijo.

Za to fazo predlagam, da se osredotočimo na pregled literature vezano na ključne besede iz naslova projekta:
Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva

Vrednotenje trajnostnega
razvoja Urbani prostor
Socialna infrastruktura
Medgeneracijsko sožitje
Življenjsko zadovoljstvo

samostojno in
povezano.

Za dosego tega cilja:

a.) Vključitev študentov v pripravo podlag za raziskavo, seminarske naloge, zaključne naloge (razpišemo teme zaključnih nalog)
Cilj: Izdaja znanstvene monografije do marca 2022 iz zgoraj navedenih temeljih raziskav.

b.) Sodelovanje na konferencah s prispevki:
Cilj: CIRRE 2021 in 2022. Izdajamo Book of Proceedings, kjer so prispevke že prispevali Živa Kristel, Bojan Grum, Darja kobal Grum, Alenka Temeljotov Salaj. Pozove se Še ostale, ki so na konferenci aktivno sodelovali, da takoj oddajo prispevke (povzetke so že oddali) z zahvalo.

c.) Objavo znanstvenih člankov. Aktivnosti pričnemo takoj.

Obveznosti do ARRS:

| | Semesters | | | | | |
|---|---|---|---|---|---|---|
| | *S1* | *S2* | *S3* | *S4* | *S5* | *S6* |
| *WP1* | *WP1* | *WP1* | *WP1* | *WP1* | *WP1* | *WP1* |
| *WP2* | *A2.1/A2.2* | *A2.3-A2.5* | *A2.3* | *A2.4/A2.5* | *A2.6* | *A2.6* |
| *WP3* | *A3.1-A3.4* | *A3.1-A3.4* | *A3.2-A3.4* | *A3.7* | *A3.2* | *A3.4-A3.7* |
| *WP4* | *A4.1* | *A4.2* | *A4.1-A4.4* | *A4.5-A4.7* | *A4.1-A4.9* | *A4.1-A4.9* |
| *WP5* | | | *A5.1-A5.5* | *A5.1-A5.5* | *A5.2-A5.5* | *A5.2-A5.5* |
| *WP6* | | | *A6.1* | *A6.2* | *A6.3-A6.6* | *A6.3-A6.6* |
| *WP7* | | | | | *A7.1/A7.2* | *A7.1/A7.2* |
| *WP8* | | | | | *A8.1/A8.2* | *A8.1/A8.2* |

- Pregled obstoječe relevantne literature
- Sistemski pregled ključnih parametrov - identificirali neodvisne parametre socialne infrastrukture urbanega grajenega okolja in ki so usmerjeni med generacijsko k uporabnikom in njihovim zaznavam življenjskega zadovoljstva
- Zastaviti metodologijo kvantitetne raziskave – vprašalnika

Odpre se GOOGLE DRIVE (zadolži se Darjo Kobal Grum)

Za spletno stran ARRS, kar je obveza vodilne institucije (EPF), urgira vodja projekta ter o tem obvesti vse raziskovalce.

Sklepno se dogovori, da se medsebojno obveščamo o vseh

dejavnostih. Dogovori se, da je priloga temu zapisniku:
- Projekt (podroben opis vsebine)
- Primer »poglavja« za monografijo

Zapisal:

Bojan Grum

2. **Koordinacijski sestanek PROJEKT J5-3112 z dne 17.6.2022:**

**Naslov projekta:**

**Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva**

Evaluation of the sustainable development of the urban environment through the parameters of social infrastructure and life satisfaction

**Št. J5-3112**

**Vabljeni:**

| Inštitucija | Raziskovalec |
|---|---|
| NU - EPF | Bojan Grum |
| NU - EPF | David Bogataj |
| NU - EPF | Ajda Fošner |
| NU - EPF | Marjana Šijavec Zavrl |
| NU - EPF | Živa Kristl |
| INV | Alenka Temeljotov Salaj |
| INV | Bojan Grum |
| INRISK | Marija Bogataj |
| INRISK | Valerija Rogelj |
| INRISK | Eneja Bogataj |
| FF | Darja Kobal Grum |
| FF | Gregor Sočan |

Vodja projekta:
Dr. Bojan Grum

Prisotni:

David Bogataj
Marija Bogataj
Marjana Šijavec Zavrl
Živa Krisl
Grega Sočan
Darja Kobal Grum
Bojan Grum

Ostali so se opravičili.

**Sklepi:**

1.) Časovnica:

Do konca septembra se pripravi osnutek VPRAŠALNIKA. Za to sta zadolžena Darja Kobal Grum in Bojan Grum. Vprašalnik se posreduje v pregled in dopolnitev vsem članom projektne skupine., ki v roku enega meseca, predvidoma do konca oktobra posredujejo predloge za dopolnitev. Vprašalnik se dopolni in konča (na tem nivoju) do konca meseca novembra.

Vprašalnik se posreduje Ajdi Fošner in Gregu Sočanu – metodologa. Pilotne študije, zanesljivosti, itd… vprašalnika se opravijo do konca meseca marca, ko se verificiran vprašalnik posreduje celotni projektni skupini. Vprašalnik se spusti v »eter« konce meseca marca, predvidoma pa bi zbirali odgovore 2 meseca. Sledi obdelava rezultatov, kar pa bo predmet pogovora na naslednjih koordinacijah.

2.) Dostop do skupne spletne strani s podatki o projektu. Na EPF-ju je skladno z navodili odprta spletna stran projekta. Dostop bo posredovan vsem v najkrajšem roku. Posreduje Bojan Grum.

3.) CIRRE 2022 (glej: www.cirre.eu ). Konferenca se bo letos odvijala v Ankari, Turčija, 15.10.2022. Na konferenci bomo imeli svojo sekcijo, kjer bodo predstavljeni (zbrani) prispevki projektne skupine. Člane zato vabim, da do konca meseca pripravijo kratke povzetke (400 besedo) s svojega področja na temo projekta, do konca julija pa članke (lahko v krajši verziji). Poskrbeli bomo, da bo vse primerno objavljeno, končne verzije prispevkov pa bi novembra zbrali in objavili v znanstveni monografiji.

4.) Dogovorili smo se, da v roku enega meseca preverimo možnosti za izdajo posebne tematske številke v dostopnih revijah (Dignitas, Urbani izziv, itd…).

5.) Jesenska šola. Na EPF-ju je organizirana jesenka šola, ki je letos posvečena našemu projektu. Program vam bom posredoval, ko bo dokončan.

6.) V priponi se vsem članom posreduje so sedaj objavljeni monografiji: Razprave 1 in Razprave 2. V pripravi so Razprave 3, kjer mentorji skupaj s študenti (magistratni ali doktoranti) pripravimo poglavje v znanstveni monografiji. K sodelovanju vabljeni vse člani projektne skupine.

7.) Poziv vsem članom da pri objavi člankov navedejo:

**ACKNOWLEDGMENTS**
This study was partially funded by the Slovenian Research Agency through the project: Evaluation of the sustainable development of the urban environment through the parameters of social infrastructure and life satisfaction, No. J5-3112.

**ZAHVALA**
Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva; št. projekta J5-3112.

Vse objave člani poročajo, da to zavedemo v tabelo aktivnosti članov.

Sklepno se dogovori, da se medsebojno obveščamo o vseh dejavnostih.

Zapisal: vodja projekta Bojan Grum

# TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA

***RAZPRAVE 1***


UREDIL

BOJAN GRUM

*Inštitut za nepremičninske vede*

*Ukmarjeva 6*

*SI-Ljubljana*

*Naslov publikacije:*
Trajnostni razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva - *RAZPRAVE 1*

Uredil:
Bojan Grum

*Izdala in založila:*
Inštitut za nepremičninske vede, Ukmarjeva 6, 1000 Ljubljana

*Recenzenta:*
izr.prof.dr. Boštjan Kerbler
doc. dr. Boštjan Aver

*Izdaja:*
Prva izdaja

*Postavitev in tisk:*
Inštitut za nepremičninske vede, Ukmarjeva 6, 1000 Ljubljana

*Leto izdaje:*
2022

*Naklada:*
100 izvodov

CIP – Kataloki zapis o publikaciji
Narodna in univerzitetna knjižnica Ljubljana

502.131.1:711.5(086.034.4)(082)
364-3(086.034.4)(082)

TRAJNOSTNI razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva [Elektronski vir] : razprave 1 / uredil Bojan Grum. - 1. izd. - Ljubljana : Inštitut za nepremičninske vede, 2022

ISBN 978-961-94204-9-2
COBISS.SI-ID 97685763

# TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA

***RAZPRAVE 1***

Znanstvena monografija

UREDIL
BOJAN GRUM

*Inštitut za nepremičninske vede*

Ljubljana, 2022

# Predgovor

Znanstvena monografija z naslovom *Trajnostni razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva – razprave 1* zajema štiri poglavja oz. štiri znanstvene razprave. Alijana Batič in Bojan Grum v prvi razpravi izhajata iz predpostavke zavedanja človeštva kam vodi goli progresizem, ki ne pozna meja rasti. S tem postavljata drugačne temelje vzdržnega razvoja, ki bi generacijam, ki prihajajo za nami, pustil na razpolago Zemljo z njenimi potenciali, ne pa le razdejanje kot posledico ozkega, egocentričnega razmišljanja v okvirih svojega kratkega bivanja. Raziskava pomembno sledi ambicijam upoštevati razmisleke in občutke o kakovosti življenja kot tudi povezanost grajenega okolja z zaznavanjem zadovoljstva z življenjem. Martina Antonič Kogoj in Živa Kristl v poglavju z naslovom Starejša generacija in energetska prenova nepremičnin obravnavata probleme energetske prenove stavb kulturne dediščine povezane s specifiko lokacije, kulture in regulative. Prispevek vsebuje obširen pregled literature na področju obravnavanih tem ter pregled študije o zavedanju uporabnikov o arhitekturni dediščini modernizma. Problematika, ki se je pokazala v raziskavi, odpira vpogled v razumevanje trenutnega stanja in hkrati nakazuje potrebne ukrepe in ustrezne pristope za ohranjanje modernističnih kvalitet stavb. Ajda Fošner in Niko Maučec analizirata vpliv dejavnikov na cene nepremičnin. V raziskavo vključujeta tri bistvene dejavnike: BDP na prebivalca, obrestne mere in inflacija. Ugotavljata, da slovenski nepremičninski trg ni popolnoma primerljiv z razvitimi evropskimi nepremičninskimi trgi, kar je pomemben doprinos k razmevanjem mekulturnih študij. V četrti razpravi Manca Štefe in Bojan Grum proučujeta medgeneracijske odnose pri podaljšanem sobivanju mlade in srednje generacije z vidika stanovanjske problematike. Izpostavljeni so trendi družinskega življenja v Sloveniji, navedeni dejavniki za podaljšano sobivanje in analizirane pravne podlage, pomembne za obravnavo stanovanjske problematike mladih.

Raziskavam je skupno proučevanje parametrov socialne infrastrukture, ki pomembno kreirajo trajnosti razvoj urbanega prostora. Pričujoča znanstvena monografija predstavlja del mozaika, ki ga sestavljamo v okviru tri letnega raziskovalnega projekta Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva (ARRS, J5-3112).

Dr. Bojan Grum

# KAZALO

**Prepoznavnost trajnostne gradnje med uporabniki grajenega prostora ter vpliv slednjega na njihovo izraženo zadovoljstvo ..... 4**
*Alijana Batič, Bojan Grum*

**Starejša generacija in energetska prenova nepremičnin ..... 70**
*Martina Antonič Kogoj, Živa Kristl*

**Analiza vplivnih dejavnikov na cene nepremičnin ..... 104**
Ajda Fošner, Niko Maučec

**Medgeneracijski odnosi pri podaljšanem sobivanju mlade in srednje generacije - stanovanjska problematika ..... 127**
Manca Štefe, Bojan Grum

# Prepoznavnost trajnostne gradnje med uporabniki grajenega prostora ter vpliv slednjega na njihovo izraženo zadovoljstvo

**Alijana Batič**

*Nova univerza, Evropska pravna fakulteta, Ljubljana, Slovenija*

**Bojan Grum**

*Nova univerza, Evropska pravna fakulteta, Ljubljana, Slovenija*

bgrum@siol.net

**Povzetek:**

Trajnostna gradnja je zagotovljena, ko so v sklopu vse-življenjskega pristopa pri načrtovanju, gradnji, upravljanju in razgradnji stavb in pripadajoče infrastrukture izpolnjene zahteve doseganja ekološke, ekonomske, družbeno-kulturološke, tehnične in procesne kakovosti, s čimer se minimizira ali izniči negativen vpliv stavb na naravo, družbeno okolje, zdravje ljudi, porabo naravnih virov in energije ter optimizira finančne izdatke skozi vso življenjsko dobo objekta. V raziskavi izhajamo iz predpostavke zavedanja človeštva kam vodi goli progresizem, ki ne pozna meja rasti. S tem smo postavili drugačne temelje vzdržnega razvoja, ki bi generacijam, ki prihajajo za nami, pustil na razpolago Zemljo z njenimi potenciali, ne pa le razdejanje kot posledico ozkega, egocentričnega razmišljanja v okvirih svojega kratkega bivanja. Raziskovalna vprašanja so bila podkrepljena z dvema hipotezama. S prvo hipotezo smo preverjali stroškovni vpliv na odločitev udeležencev za investicijo, gradnjo, nakup trajnostne grajene stavbe ter prepoznavnost trajnostnega razvoja urbanega prostora, trajnostne gradnje in trajnostnega vrednotenja stavb ter razširjenost prakse uporabe le-teh v Sloveniji. Rezultati kažejo, da je uporabnikom bolj pomembno kakovostno bivanje, dobro počutje v stavbi (npr. naravna svetloba, zvočna izolacija, kakovosten zrak itd.), funkcionalnost prostora ter okolju in zdravju ljudi prijazni materiali, ki ne vsebujejo škodljivih kemikalij kot pa začetni stroški oziroma ocena investicije. Z drugo hipotezo preverjamo ključne ukrepe pri oblikovanju zakonodaje s področja trajnostne rabe urbanega prostora in trajnostne gradnje stavb. Raziskava izloča tri ključne ukrepe in sicer povišanja deleža nepovratnih sredstev Eko sklada in ugodnejši krediti, uvedba certificiranja trajnostno grajenih stavb ter administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij. Raziskava pomembno sledi našim ambicijam upoštevati razmisleke in občutke o kakovosti življenja kot tudi povezanost grajenega okolja z zaznavanjem zadovoljstva z življenjem.

**Ključne besede:** trajnostni razvoj, trajnostna gradnja, grajeno okolje, zadovoljstvo uporabnika, kakovost življenja

# 1 Uvod

Trajnostni razvoj naj bi zadovoljil potrebe človeka ob sočasni skrbi, da možnosti prihodnih rodov ne bodo ogrožene. Največkrat citirana definicija trajnostnega razvoja (angl. Sustainable development) izhaja iz poročila Brundtlandine komisije iz leta 1987, ki je ta pojem definirala kot »razvoj, ki zadošča današnjim potrebam, ne da bi pri tem ogrožal možnosti prihodnjih generacij, da zadostijo svojim lastnim potrebam« (WCED, 1987, str. 43) in ga opredelila kot proces sprememb, v katerem se črpanje virov, politike investicij, usmerjenost tehnološkega razvoja in institucionalne spremembe prilagajajo potrebam človeštva danes in v prihodnosti ter pri tem ohranjajo ravnovesje ekosistemov. Trajnostni razvoj in aktivnosti na tem področju, v povezavi z izvedbo gradnje in umestitve v okolje in prostor, pa razumemo kot trajnostna gradnja. Adams (2006) navaja, da je takšna opredelitev trajnostnega razvoja zelo nejasna, vendar spretno zajema dve temeljni vprašanji, in sicer problem degradacije okolja, ki jo povezujemo premosorazmerno z gospodarsko oziroma ekonomsko rastjo, in s ciljem razvoja, ki zmanjšuje revščino.

Trajnostna gradnja je zagotovljena, ko so v sklopu vse-življenjskega pristopa pri načrtovanju, gradnji, upravljanju in razgradnji stavb in pripadajoče infrastrukture izpolnjene zahteve doseganja ekološke, ekonomske, družbeno-kulturološke, tehnične in procesne kakovosti, s čimer se minimizira ali izniči negativen vpliv stavb na naravo, družbeno okolje, zdravje ljudi, porabo naravnih virov in energije ter optimizira finančne izdatke skozi vso življenjsko dobo objekta. Leta 1994 je CIB (Conseil International du Batiment), mednarodna organizacija za raziskave in inovacije v gradbeništvu, definirala cilje trajnostne gradnje kot ustvarjanje in upravljanje zdravega delovnega in bivalnega okolja, ki temelji na uporabi učinkovitih virov in ekološko varnih smernicah gradnje (Kibert, 2008).

V zadnjih 20. letih ima bolj odgovoren odnos družbe do okolja pomembno vlogo, saj se odraža pri oblikovanju svetovnih in nacionalnih politik, smernic in ukrepov ter praks. Ambrožič (2019) navaja, da je bilo v letu 2016 kar 12.000 znanstvenih raziskav posvečenih vprašanjih o globelnem segrevanju. Ugotavlja, da v Evropi kar 97 % raziskav potrjuje obstoj globalnega segrevanja, ki je posledica človeških aktivnosti. Rousselot (2018) ocenjuje, da je stavbni sektor odgovoren za porabo približno 40 % končne energije. Grajeno okolje (stavbe) v razvitem svetu predstavlja kar 30–40 % skupne rabe energije in s tem predstavlja velik manevrski prostor oz. izziv za zmanjševanje rabe primarne energije in emisij (Praznik, Zbašnik-Senegačnik, 2016).

Kot eno najučinkovitejših sredstev za izboljšanje našega življenja in varovanje okolja, ki lahko prispeva k doseganju globalnih trajnostnih ciljev, je t.i. trajnostna gradnja. Trajnostni razvoj in trajnostna gradnja kot njegov sestavni del sta na območju EU opredeljena kot primarna cilja in kot takšna zastopana v zakonodaji, usmeritvenih dokumentih in strategijah EU ter v nacionalnih strategijah in smernicah posamezne članice EU (Marinič, Kuhta, Šuman, 2016). Celovita obravnava okoljskih vplivov stavbe, ekonomičnost projekta, funkcionalnost, zdravstvena neoporečnost, kakovost bivalnih pogojev in sožitje stavbe z družbenim okoljem ter kulturnimi vrednotami so lastnosti, ki so značilne za trajnostne stavbe in predstavljajo temelj prihodnje zelene družbe (Grum, Kobal Grum, 2020). Gre za celovit pristop s poudarkom na okoljskem odtisu stavbe v življenjskem ciklu od začetnega načrtovanja in gradnje do operacij v življenjski dobi zgradbe in strategij izrabljenega časa (Suttie idr., 2017). Nabor različnih elementov, ki jih lahko vključuje zelena stavba, je pripeljala do razvoja sistemov ocenjevanja in certificiranja za oceno, kako uspešen je gradbeni projekt, ki ustreza določenemu merilu trajnostnega razvoja (Suttie idr., 2017).

V splošnem pristop k trajnostnem razvoju zajema okoljski, ekonomski in družbeni vidik (Smernice za trajnostno gradnjo, 2013). Kot navaja Šijanec Zavrl (2015) v svetu obstaja preko 250 različnih metod za okoljsko in trajnostno vrednotenje stavb, ki pa praviloma med seboj niso primerljive. Marinič, Kuhta in Šuman (2016) v svoji raziskavi primerjave sistemov meril trajnostne prenove poslovnih stavb predstavijo tri uveljavljene modele vrednotenja trajnostne gradnje in sicer: LEED (ang. Leadership in Energy and Environment Design), BREEM (Ang. Building Research Environmet Assesment Method) in DGNB (nem. Deuche Gesellshaft fur Nachhaltiges Bauen). Po Plutu (2004) so za koncept trajnostnega razvoja ključne tri razsežnosti: ekonomska – maksimiziranje humanega blagostanja znotraj značilnosti obstoječih virov in tehnologij; ekološka – zaščita integritete ekoloških podsistemov, ki so kritični za splošno stabilnost globalnega ekosistema in sociološka – upošteva človeško naravo ključnih nosilcev in vzorcev socialne organizacije, ki so temeljni za dosego ciljev trajnostnega razvoja. Nobena od naštetih metod pa ni ekonomska metoda vrednotenja (npr. tržna vrednost), ampak navedene metode opredeljujejo dosežen nivo trajnostne gradnje (ali zadosti ali ne zadosti opredeljenim kriterijem trajnostne gradnje). Tako tudi Warren-Myers (2012) poudarja omejeno uporabnost dosedanjih raziskav glede razmerja med trajnostno in tržno vrednostjo, kar pripisuje pomanjkanju zgodovinskih dokazov, podatkov ali informacij o količinsko merljivih učinkih tega novega trenda (trajnosti) na tržno vrednost. Okoljski certifikati so bili torej ustvarjeni z namenom določitve meril in metodologije, s pomočjo katerih se ocenjuje raven trajnosti (Brown

idr., 2006). Takšni certifikati ponujajo potrošnikom in vlagateljem podlago za primerjavo med naložbami ali najemninami (Boyd, Kimmet, 2006). Rezultati vrednotenja pa so doseženi učinki (največkrat energetski prihranki) v primerjavi s standardno učinkovitostjo (Mangialardo idr., 2019).

Vrednotenje trajnostne gradnje zajema ne samo naravno okolje, temveč tudi ekonomski in socialni vidik (Grum, Kobal Grum, 2020). Obnova ali novi gradbeni posegi morajo zato vključevati intervencije, katerih cilj je doseči največjo okoljsko trajnost ob hkratnem zagotavljanju najvišjega ekonomsko vrednost in večjo blaginjo posameznikov (Brown idr., 2006). Model trajnostnega razvoja, torej t. i. trojček, ki opredeljuje etično-ekonomski razvoj, socialno pravičnost in varstvo okolja, usmerja strategije podjetja, mesta, države kakor tudi dnevno odločanje, lahko tudi že na nivoju posameznika (Atelšek, 2018).

Poglavitni cilj raziskave je ugotoviti prepoznavnost trajnostnega razvoja urbanega prostora, trajnostne gradnje in sistemov meril trajnostnega vrednotenja oz. certificiranja zgradb (predvsem v gradbenem sektorju) ter prepoznati pričakovanja investitorjev, po drugi strani pa želje in pričakovanja uporabnikov zgradb. V raziskavi nas zanima, kako pomembni se prebivalcem Slovenije zdijo kriteriji trajnostne gradnje stavbe: trajnostni razvoj urbanega prostora, možnost subvencije in ugodnih kreditov za okolju prijazne naložbe, zmanjšanje odpadkov in možnost recikliranja, poraba energije, poraba vode, stroški uporabe in vzdrževanja stavbe, začetni ocenjeni stroški investicije, okolju in zdravju ljudi prijazni materiali, ki ne vsebujejo škodljivih kemikalij, dobro počutje v stavbi, funkcionalnost prostora in potencialna vrednost stavbe (tržna cena, estetska vrednost, lokacija). Zanima nas, kateri so najbolj pomembni ukrepi ali politike izboljšav pri oblikovanju zakonodaje s področja trajnostne rabe prostora in trajnostne gradnje objektov. V tem kontekstu nas tudi zanima kako demografske značilnosti (spol, starost, izobrazba, delovno mesto) vplivajo na odločitev za gradnjo ali nakup certificirano trajnostno grajene stavbe, kar sicer ni predmet te raziskave, nakazuje pa smer zanimanja za nadaljne raziskave.

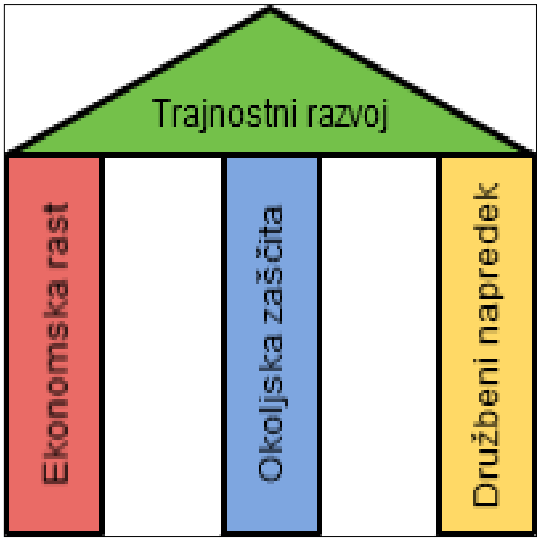
Izhajamo iz predpostavke zavedanja človeštva kam vodi goli progresizem, ki ne pozna meja rasti. S tem smo postavili drugačne temelje vzdržnega razvoja, ki bi generacijam, ki prihajajo za nami, pustil na razpolago Zemljo z njenimi potenciali, ne pa le razdejanje kot posledico ozkega, egocentričnega razmišljanja v okvirih svojega kratkega življenja.

## 2 Trajnostna blaginja

Za dosego trajnostne blaginje je potrebno enakovredno obravnavati tri koncepte trajnosti oz. tri stebre trajnostnega razvoja (Smernica za trajnostno gradnjo, 2013):

- *ekonomija* – gre za maksimiranje blagostanja znotraj obstoječih virov in tehnologij, torej zmanjšanje stroškov v življenjski dobi, trajnostne življenjske in nakupne navade, dinamično ter kooperativno mednarodno gospodarsko okolje in pogoji ter odgovorno podjetništvo, zmanjševanje potreb po subvencijah;
- *ekologija* – zaščita integritete ekoloških podsistemov, ki so pomembni za splošno stabilnost globalnega ekosistema, kar pomeni zaščito naravnih virov in zmanjšanje odpadkov, povečanje učinkovitosti, zaščita zemeljske atmosfere – ozračja, tal, podtalnice in vod, spodbujanje okolju prijazne proizvodnje;
- *družbeno kulturološka merila* – socialna harmonija in mir, zaščita in spodbujanje zdravja ljudi, ohranjanje kulturnih vrednosti, enakost možnosti, zaščita podjetništva in delovnih mest, boj proti revščini, izobraževanje, enakopravnost, integracija, varnost.

Klasičen pristop vrednotenja trajnostno razvoja grajenega okolja temelji na treh merilih: ekologija, ekonomija in družbeno-kulturološka merila (Adams, 2006).



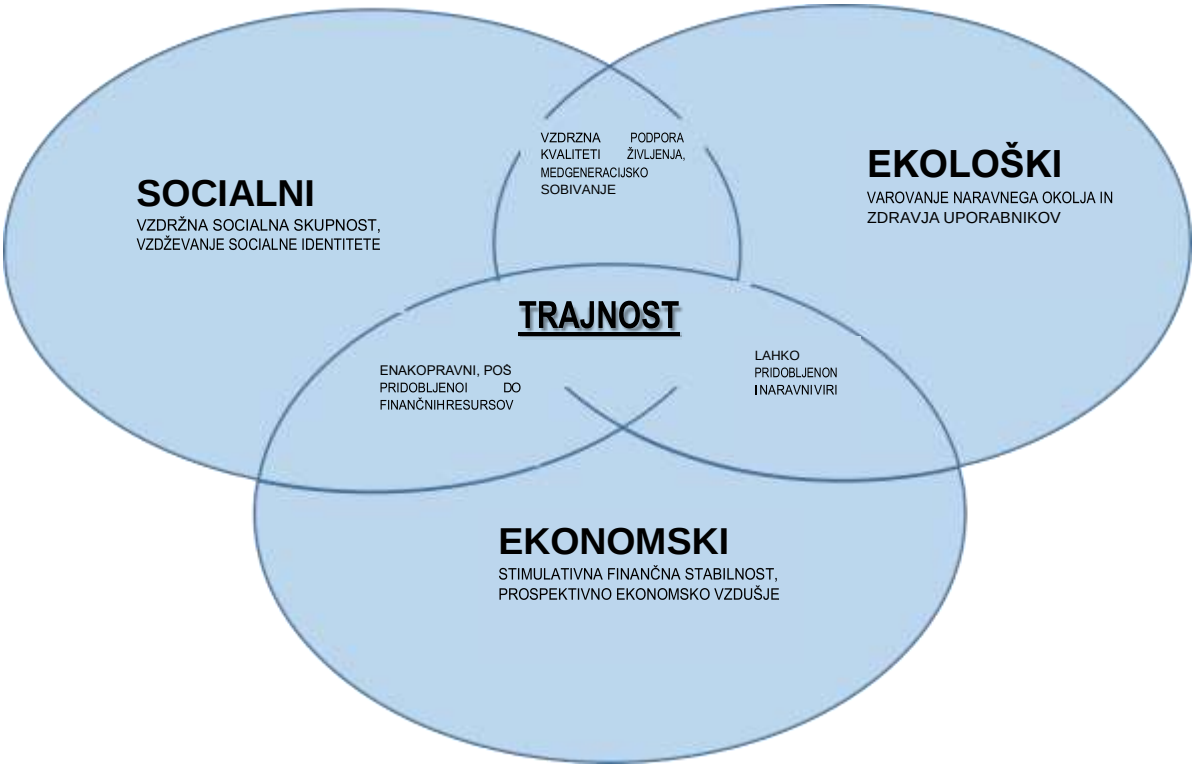

Slika 1: Trije stebri trajnostne gradnje (prirejeno po Adams, 2006)

Trajnostni razvoj je dosežen, ko so vsi trije stebri, torej ekonomski, okoljski in družbeni, usklajeni in v harmoniji. Prikazujemo ga z diagramom treh prekrivajočih krogov, ki vizualizirajo medsebojno povezanost.

Slika 2: Tri področja trajnosti ob stiku treh sestavnih delov (prirejeno po Pathak, Singh, Sharma, 2017)

Prednosti trajnostne gradnje so številne in so razvrščene na tri področja: okoljsko (zmanjšanje emisij, ohranjanje voda, zmanjšanje odpadkov, ipd.), ekonomsko (gospodarske koristi, prihranek energije, vode, povečanje vrednosti nepremičnin, ipd.) in socialno (izboljšano zdravje, boljše šole, več rekreacijskih površin, ipd.) (Reddy, 2016). Pregled literature v splošnem opredeljuje tri temeljne cilje, ki bi morali oblikovati okvir za izvajanje trajnostnega načrtovanja in gradnje stavb, ob tem pa upoštevati predhodno opredeljena načela trajnostne problematike (socialne, okoljske, gospodarske in zakonske). Ti cilji so: ohranjanje virov, stroškovna učinkovitost in zasnova, prilagojena človeku.

Temelj trajnostne gradnje prikazuje naslednja slika.




Slika 3: Temelj trajnostne gradnje (Prirejeno po Reddy, 2016)

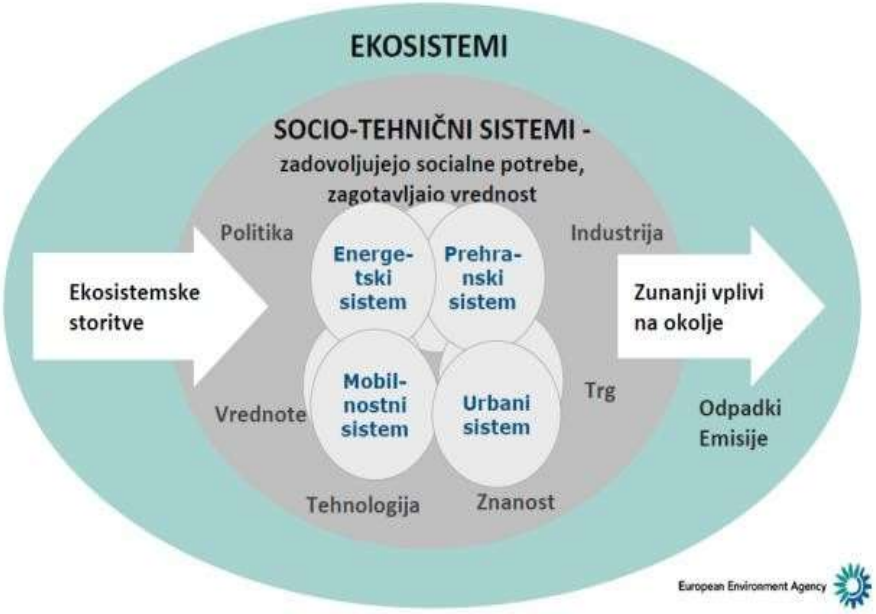
Okoljska trajnost predstavlja ohranjanje in odgovorno izkoriščanje naravnih virov. Zaobjema željo za ohranjanje biotske raznovrstnosti, ravnovesje naravnih virov, kot so tla (zemlja – prst, voda, gozdovi) in ozračja, kar pomeni sposobnost okolja za nedoločen čas podpirati določeno raven kakovosti okolja in stopnje pridobivanja naravnih virov. Pridobivanje in poraba obnovljivih virov morata biti v ravnovesju z njihovo obnovo, kar pomeni zmanjšati na dogovorjeni minimum izrabo neobnovljivih virov (neživi in nenadomestljivi), kot so npr. fosilna goriva in minerali (premog, baker ...) (Rockwood, 2008).

Družbeni trajnostni razvoj narekuje ukrepe za spodbujanje socialne pravičnosti kot npr. pravičnega dodeljevanja sredstev, zmanjševanja revščine in vzpostavitve ustreznega dostopa do družbenih storitev v celotni družbi (npr. izobraževanja, prehrane, zdravja itn.). Gre za sposobnost družbenega sistema, kot je država, družina ali organizacija, da deluje na določeni ravni družbene blaginje in harmonije za nedoločen čas. Težave, kot so vojna, endemična revščina, razširjena krivičnost in nizka stopnja izobrazbe, so simptomi, da je sistem socialno nevzdržen (Docherty, Kira, Shani, 2009).

O ekonomski trajnosti govorimo, ko sta družbeni in okoljski trajnostni razvoj tudi finančno realizirana. Ekonomska vzdržnost je sposobnost gospodarstva, da neomejeno podpira določeno raven gospodarske rasti (Anand, Sen, 2000). Trajnostni razvoj postavlja na čelo visoke cilje človekovega blagostanja. Agenda 21 – Deklaracija o okolju in razvoju (angl. Programme of Action for Sustainable Development) iz leta 1992, sprejeta na konferenci v Rio de Janeiru, narekuje štiri cilje:

- zmerno materialno blaginjo za vse prebivalce sveta (v okviru okoljskih omejitev),
- socialno in ekološko (tudi regionalno) uravnoteženost,
- visoko kakovost duhovnega življenja,
- skrb in spoštovanje vseh vrst na Zemlji.

Okoljska vizija s sloganom »Dobro živeti ob upoštevanju omejitev našega planeta« Evropske okoljske agencije narekuje umestitev družbenih sistemov v okvire ekosistemov. Trajnostni razvoj se torej uresničuje prek gospodarskega, družbenega in okoljskega razvoja, ki ustvarja pogoje in priložnosti za zdajšnje in prihodnje rodove, pri čemer stanje ekosistemov in njihova sposobnost opravljanja ekosistemskih storitev družbi določata možnosti njenega (Resolucija o Nacionalnem programu varstva okolja za obdobje 2020–2030, 2020). Navedeno prikazuje slika 4.




Slika 4: Ekosistemski model razvoja (Resolucija o Nacionalnem programu varstva okolja za obdobje 2020–2030, 2020)

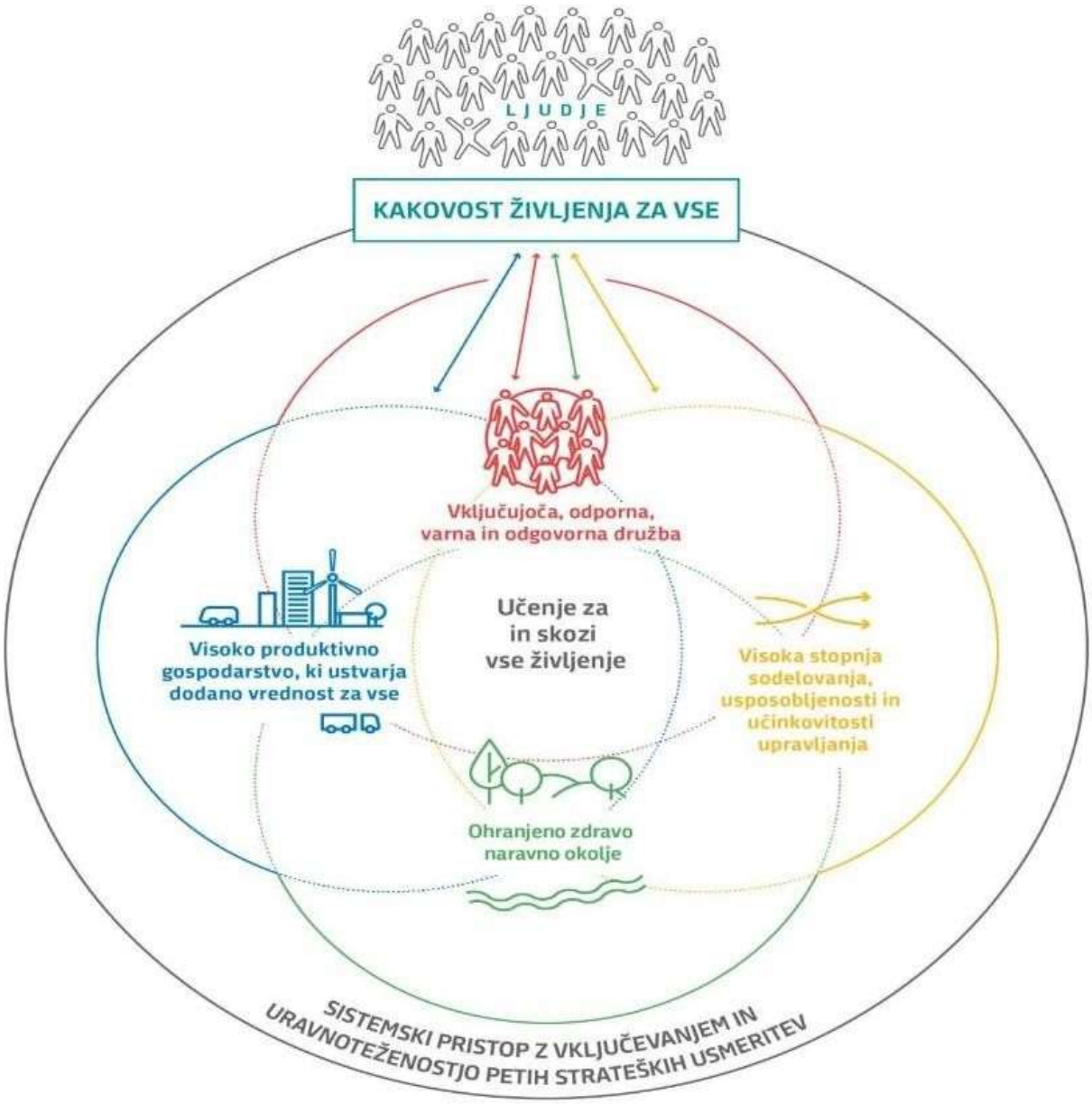
Trajnostni urbani razvoj mest želi rezultirati v splošni urbani blaginji, visoki kakovosti življenja, materialni blaginji ter socialni varnosti in pravičnosti, ob hkratnem ohranjanju primernih prostorskih, življenjskih pogojev za prihodnje generacije. Spodbuja se mešana raba urbanega prostora, okolju prijazna organizacija prevoza, varstvo kulturne dediščine in narave v mestu, izboljšanje kakovosti bivalnega okolja, sonaravna raba naravnih virov; ohranjanje zelenih površin v mestnem središču pa povezuje s prehodnim zelenim sistemom mestne regije ter izenačuje pogoje bivanja v mestu in na podeželju (Lampič idr., 2017). Cilji trajnostnega razvoja mesta in urbanega prostora naj bi bili*:* mešana raba – mesto kratkih poti, preprečevanje razpršene poselitve oz. širjenja mest, strnjena poselitvena struktura, uravnotežen in policentrični urbani sistem, obnova degradiranih urbanih območij, revitalizacija obstoječih mestnih območij, izboljšanje kakovosti zraka in vod, zmanjševanje hrupa, kakovost oskrbe s pitno vodo, zmanjševanje emisij toplogrednih plinov, uporaba obnovljivih virov energije, zmanjševanje količine odpadkov, razvoj kakovostnega javnega prometa, kakovost življenja, ohranjanje kulturne dediščine, biotska pestrost in ohranjanje in širitev javnih zelenih površin (Lampič idr., 2017). Cilje trajnostne gradnje prikazuje slika 5.

V povezavi z gradbenim okoljem je empirično velik del nedavnega dela preučeval samo eno plat blaginje, ki je gospodarska. Koncept dobrega počutja pa je kompleksen sistem, ki obsega tako subjektivne kot objektivne dejavnike. Subjektivni dejavniki se nanašajo na subjektivno zadovoljstvo ljudi s svojim življenjem, vključno z na primer srečo, odnosi v družini in s prijatelji, s sodelavci itd.

Infrastrukturni projekti spodbujajo ekonomsko blaginjo, dopolnjujejo številne socialne intervencije in olajšajo sodelovanje v družbenopolitičnih procesih (Asomani-Boateng idr., 2015). Usmerjenost cilja družbene izboljšave je povezana z vrstami socialnih kazalnikov (Fulford idr., 2015). Socialni kazalnik je merilo za spremljanje napredka družbe v smislu izboljšanja blaginje skozi čas ali sprememb v družbi glede na razvijajoče se razvojne cilje (Noll, 2013). Stopnja razvoja kraja vpliva na stopnjo zadovoljstva in potrebe, ki se tam zahtevajo (Missimer, Broman, 2017; Sierra idr., 2017, 2018). Stopnja razvoja kraja vpliva na stopnjo zadovoljstva in potrebe, ki se tam zahtevajo (Missimer, Broman, 2017; Sierra idr., 2017, 2018). Potrebe so eden ključnih motivov, ki določajo potrošnjo. Številni avtorji, kot so Baumeister in Leary (1995), Engle in Altschuld (2014), (Grum, Grum Kobal, 2020) so opozorili, da je treba predvsem upoštevati potrebe; pod kakršnimi koli pogoji morajo potrebe delovati na mišljenje, občutke in vedenje; če potrebe niso zadovoljene, je treba upoštevati negativne posledice. Kadar

potrebe niso zadovoljene, bi se moral njegov objektivni pomen povečati ali zmanjšati. Avtorji so tudi opozorili, da bi morale biti potrebe skupne za vse. Kulbickienė (2004) meni, da potrebe odražajo usmeritve in izbire stanovalcev, torej obstoječe iskane storitve in storitve, ki jih zadovoljujejo. Navedeno prikazujeta sliki 5 in 6.

Slika 5: Cilji trajnostnega razvoja (Agenda 2030 za trajnostni razvoj, 2016)




Slika 6: Kakovost življenja (Strategija razvoja Slovenije, 2030)

Avtorji so tudi opozorili, da bi morale biti potrebe skupne za vse. Kulbickienė (2004) meni, da potrebe odražajo usmeritve in izbire stanovalcev, torej obstoječe iskane storitve in storitve, ki jih zadovoljujejo.

Stanovanje zadovoljuje potrebe ljudi po zavetju, je lahko pomemben sestavni del bogastva in je pomemben sektor gospodarstva. Stanovanja igrajo ključno vlogo v ekonomiji dela in procesu urbanizacije. Razumevanje teh krogov je ključnega pomena pri določanju, kako stanovanjski trg šokira gospodarsko aktivnost, družbeni napredek in blaginjo (Grum, Kobal Grum, 2020).

# 3 Zakonodaja na področju trajnostnega razvoja urbanega prostora

## 3.1 Splošno

V zadnjih letih evropska politika namenja posebno pozornost trajnostnemu razvoju (Grum, Kobal Grum, 2020). Povprečna poraba energije v zgradbah odseva več kot tretjino skupne porabe energije (Praznik, Zbašnik-Senegačnik, 2016). Direktiva o energetski učinkovitosti stavb EPBD 2002/91/EC (angl. Energy Performance of Buildings Directive (EPBD) št. 2002/91/ES) in predvsem prenovljena direktiva EPBD 2010/31/EU nalaga obveznost izračuna energetske učinkovitosti stavb (ogrevanje, topla voda, hlajenje, razsvetljava, prezračevanje), določitve minimalnih zahtev glede energetske učinkovitosti za nove stavbe kakor tudi za večje obstoječe stavbe v primeru večje prenove, izvedbo energetsko izkaznice stavb in redne preglede kotlov ter klimatskih sistemov v stavbah. Prenovljena direktiva EPBD je imela tako cilj do leta 2020 zmanjšati porabo končne energije v EU za 5–6 % ter 160–210 Mt prihrankov $CO_2$ na leto (Direktiva 2018/844/EU, str. 75–91). Glede na to, da je grajeno okolje velik porabnik energije, bo v bodočnosti velik del tovrstne aktivnosti fokusiran na gradbeništvo ter področje energetske in trajnostne prenove obstoječega stavbnega sektorja ter gradnje novih trajnostnih stavb (Šijanec Zavrl, Kolšek, 2009).

## 3.2 Pregled evropskih predpisov in dokumentov s področja energijske učinkovitosti stavb

Slika 7: Direktive s področja stavbnega sektorja, ki obravnavajo energetsko učinkovitost (Šijanec Zavrl, 2018)

*Strategija za pametno, trajnostno in vključujočo rast Evropa 2020*

Evropska komisija je marca 2010 sprejela Strategijo za pametno, trajnostno in vključujočo rast Evropa 2020 z namenom izvedbe srednjeročnih in dolgoročnih ukrepov za izhod iz gospodarske krize in preoblikovanja EU v pametno, trajnostno in vključujoče gospodarstvo z visoko stopnjo zaposlenosti, produktivnosti in socialne blaginje. V ospredje je postavila tri usmeritve, ki se dopolnjujejo:

- pametna rast – razvoj na znanju in inovacijah temeljčega gospodarstva;
- trajnostna rast – bolj učinkovito, zeleno in konkurenčno gospodarstvo;
- vključujoča rast – spodbujanje visoke stopnje zaposlenosti in družbene ter teritorialne blaginje.

Strategija Evropa 2020 vsebuje ključnih sedem pobud »Unija inovacij«, »Mladi in mobilnost«, »Evropska digitalna agenda«, »Gospodarska politika v času globalizacije«, »Program za nova znanja in spretnosti ter nova delovna mesta«, »Evropska platforma za boj proti revščini« in »Evropa, gospodarna z viri«, ki izpostavlja uporabo obnovljivih virov in spodbujanje energetske učinkovitosti (Strategija Evropa 2020, 2010, str. 6). Na področju podnebja in energetike si je Evropska komisija zastavila cilj, imenovan »20/20/20«, kar pomeni 20-odstotno izboljšanje energetske učinkovitosti, 20-odstotno povečanje deleža obnovljivih virov in 20-odstotno znižanje emisij toplogrednih plinov. Sočasno določa, da morajo države članice za doseganje ciljev strategije Evropa 2020 le-te vključiti v svoje nacionalne cilje in ukrepe (Strategija Evropa 2020, 2010, str. 11).

Leta 2014 je Evropska komisija nadgradila prioritete v t. i. dokumentu Okvir podnebne politike za obdobje 2020–2030, ki določa, da je treba glede na leto 1990 zmanjšati emisije toplogrednih plinov za 80–95 % do leta 2050, predhodno pa za 40 % do leta 2030 in doseči delež iz obnovljivih virov v višini vsaj 27 % (kasneje popravek na 32 %) (2030 climate & energy framework, Evropska komisija, 2020) ter do leta 2030 izboljšati energetsko učinkovitost za vsaj 27 % (kasneje popravek na 32,5 %) (2030 climate & energy framework, Evropska komisija, 2020)

*Direktiva 2012/27/EU (EED)*

Na podlagi Strategije Evropa 2020 je bila v letu 2012 sprejeta Direktiva 2012/27/EU, ki podkrepi cilje s področja podnebne politike. Direktiva določa splošni okvir za spodbujanje energetske učinkovitosti ter ukrepe, kot so upoštevanje energetske učinkovitosti v javnih naročilih (poleg stavb tudi pri nakupu izdelkov in storitev), pri prenovi javnih stavb, pogodbeno zagotavljanje prihrankov energije, učinkovitost proizvodnje energije, dostop električne energije iz soproizvodnje toplote in električne energije do omrežja, obveznost prihranka energije, obvezno izvajanje energetskih pregledov v velikih podjetjih, informacijske storitve za porabnike energije ter energetsko učinkovitost v ureditvi omrežij. Zahteve so bile v naš nacionalni prostor prenesene z Energetskim zakonom. Predhodna Direktiva 2010/31EU o energetski učinkovitosti stavb nalaga izvajanje energetskih prenov stavb v lasti javnega sektorja. Predlog novejše Direktive 2012/27/EU je bil, da bi do 1. 1. 2014 letno obnovili in nadgradili v energetsko učinkovite stavbe 3 % zgradb, izračunano glede na uporabno stavbno površino, ki je večja od 250 $m^2$ (Direktiva 2012/27/EU, str. 14). Ena izmed prioritet, ki jih nalaga direktiva, je tudi obveznost pregleda energetske učinkovitosti velikih podjetij, saj se tu lahko doseže največji prihranek energije. Večina potencialnih podjetij v Evropski uniji so mala in srednja podjetja (MSP). Poleg tega direktiva obravnava problematiko pomanjkanja dovolj zanesljivih kadrov s področja energetske učinkovitosti. Navaja, da bi morale države vzpostaviti primeren sistem za potrjevanje ponudnikov energetskih storitev, energetskih pregledov in finančnih spodbud, ki so trenutno namenjene predvsem za javni in stanovanjski sektor (Direktiva 2012/27/EU, str. 7–8).

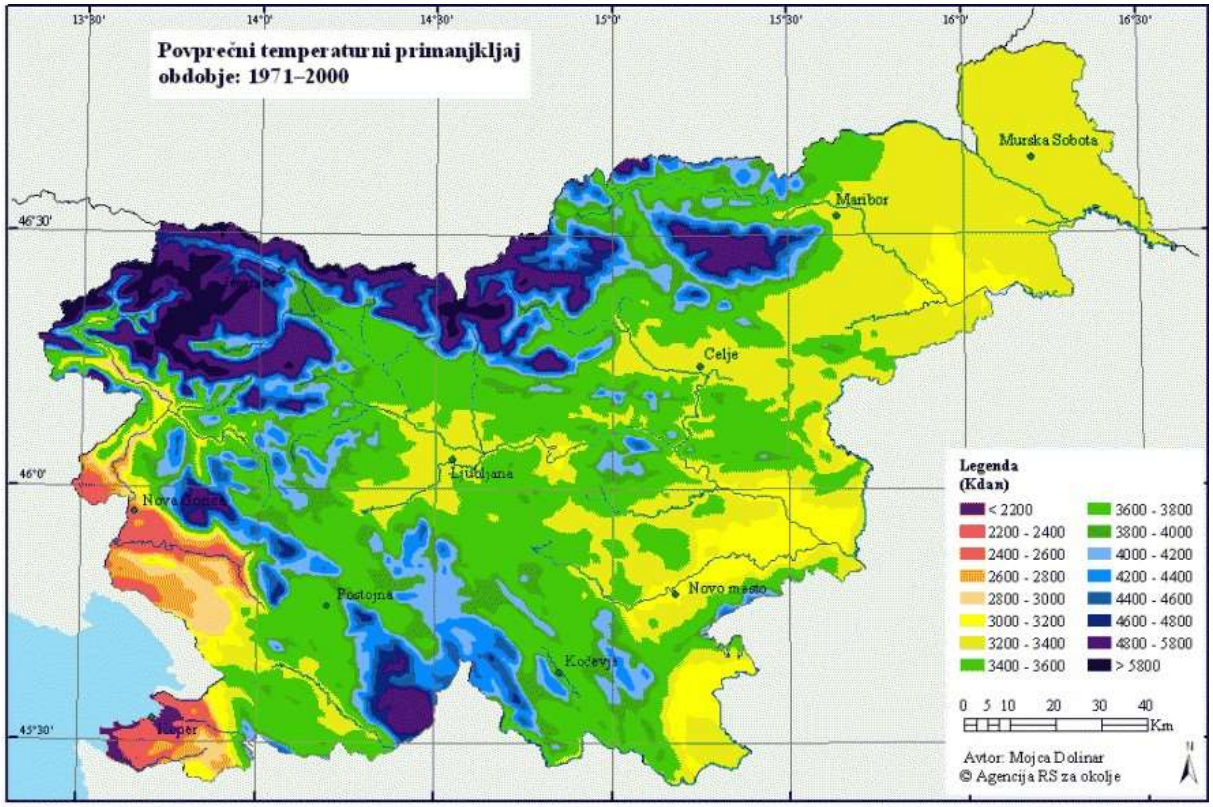
*Direktiva 2010/31/EU (EPBD)*

Direktiva 2010/31/EU s ciljem omejevanja rabe energije v stavbah poleg ovoja stavbe vključuje tudi prezračevanje, ogrevanje, klimatizacijo, hlajenje, pripravo tople vode in razsvetljavo. Energetska izkaznica mora opredeliti energetsko učinkovitost stavbe in referenčno vrednost, kot so minimalne zahteve glede energetske učinkovitosti. Le-te najemnikom in lastnikom stavbe ali enot v stavbi omogočajo primerjavo in oceno energetske učinkovitosti. Lahko vsebujejo tudi dodatne informacije, in sicer letno porabo energije za nestanovanjske stavbe ali podatek o odstotkih energije iz obnovljivih virov v skupni porabi energije (Direktiva 2010/31/EU, str. 16–23). Med ostalim določa osnove metodologije za izračun celovite energijske učinkovitosti stavb, minimalne zahteve za energetsko učinkovitost novogradenj ali

obstoječih stavb, zahteve za skoraj nič-energijske stavbe, zahteve za tehnične sisteme s področja energetske učinkovitosti, energetske izkaznice stavb, sistem nadzora nad energetskimi izkaznicami in preglede ogrevalnih sistemov ter klimatskih sistemov (Direktiva 2010/31/EU, str. 16–23).

## 3.3 Pregled slovenskih predpisov in dokumentov s področja energijske učinkovitosti zgradb

Energetska bilanca novogradenj in obnovljenih stanovanjskih stavb določa potrebno energijo za ogrevanje (40 %), hlajenje (15 %), prezračevanje (10 %), toplo sanitarno vodo (20 %), razsvetljavo (5 %) in ostalo rabo (10 %). V preteklosti je večji delež imelo ogrevanje, ki je pokrivalo tudi do 75 % potrebne energije za delovanje celotne stavbe, predvsem zaradi slabšega toplotnega ovoja. Gradnja skoraj nič-energijskih stavb je nujno potrebna zaradi zmanjševanja zahtevane energije za ogrevanje stavbe in posledično s tem povezanim temperaturnim primanjkljajem (Tahir idr., 2017). Navedeno prikazuje slika 8.




Slika 8: Povprečni temperaturni primanjkljaj na območju Slovenije za obdobje 1971–2000 (Tahir idr., 2017).

*Energetski zakon (EZ-1)*

Zahteve Direktive 2012/27/EU in Direktive 2010/31/EU je Slovenija prezrcalila v Energetskem zakonu, sprejetem v marcu 2014. Ključni cilji so zmanjšanje rabe energije, učinkovita raba energije in energetska učinkovitost. Postavljena je zahteva, da mora biti novogradnja do leta 2021 skoraj nič-energijska, za javne stavbe pa to velja že od leta 2019. Določeni so pogoji, pravila in načini izdaje ter izdelave energetskih izkaznic. Med drugim 332. člen zakona določa, da je pri novogradnji ali prenovi treba izdelati študijo izvedljivosti alternativnih sistemov za oskrbo z energijo. V nadaljevanju pa je v 334. členu določeno, da morajo lastniki stavb pri prodaji ali oddaji zagotoviti energetsko izkaznico ter jo od 1. januarja 2015 naprej navesti pri oglaševanju oddaje ali prodaje (EZ-1, 332, 334. člen).V javnih stavbah nad 250 $m^2$ mora biti energetska izkaznica izobešena na vidnem mestu. Register energetskih izkaznic vodi ministrstvo. Veljavnost energetske izkaznice je deset let (EZ-1, 354. člen).

*Pravilnik o učinkoviti rabi energije v stavbah (PURES)*

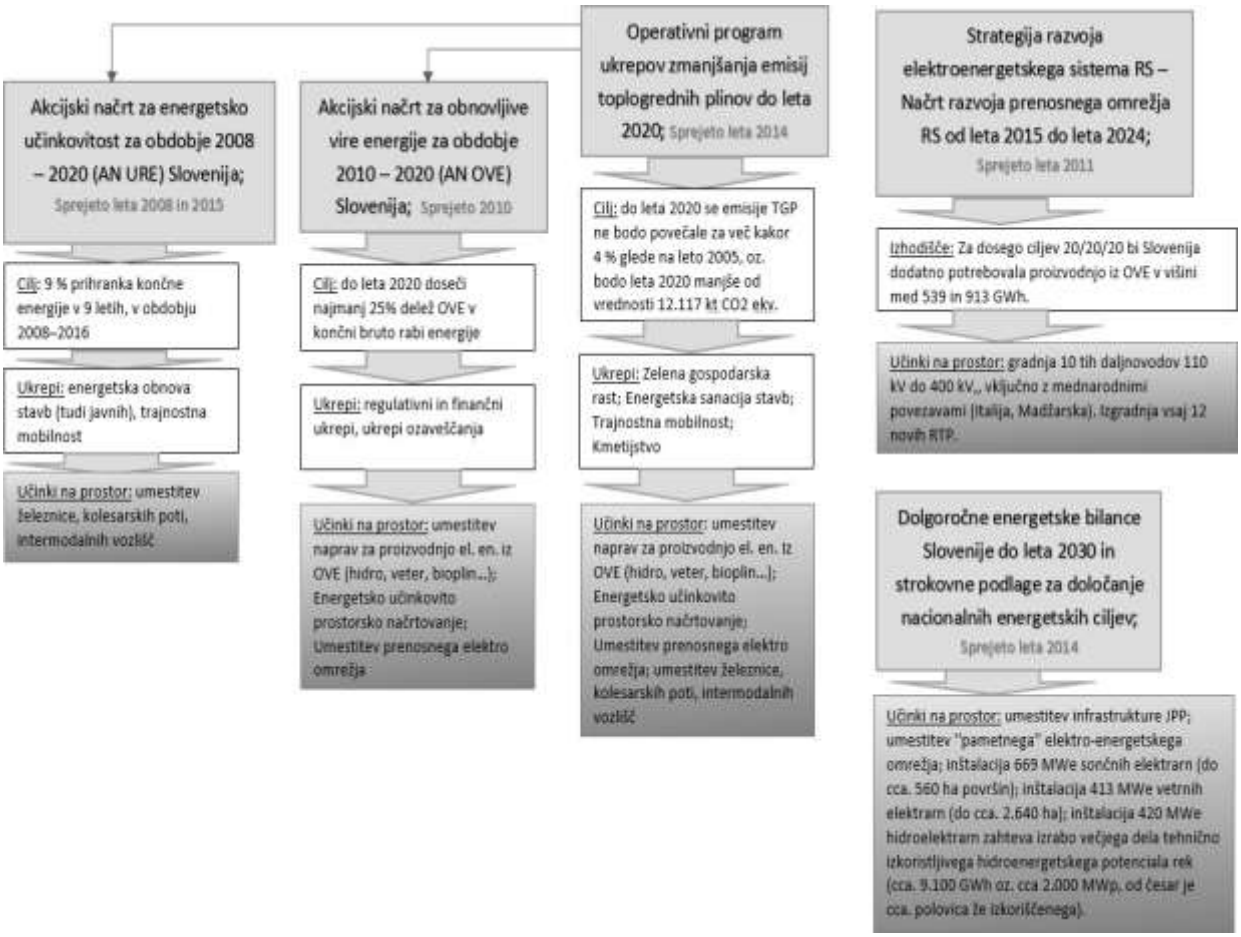
V pravilniku so določene nove smernice za energijsko učinkovito novogradnjo ali prenovo obstoječih stavb. Postavljene so najnižje zahteve za učinkovito rabo energije pri gradnji novih stavb in rekonstrukciji stavb oziroma njihovih posameznih delov, kjer se posega v najmanj 25 odstotkov površine toplotnega ovoja in velja za večino stavb (PURES, 2. člen). Nalaga torej obveznost izboljšave toplotne zaščite ovoja stavbe, in sicer je v klasičnih toplotnoizolacijskih sistemih na zunanji steni treba vgrajevati med 16 cm in 20 cm toplotne izolacije. Za delovanje sistemov v stavbi je treba uporabiti obnovljive vire v obsegu najmanj 25 odstotkov celotne končne energije. Pravilnik podaja tehnične zahteve prezračevanja, hlajenja, ogrevanja, priprave tople vode in razsvetljave. Zaenkrat sta trojna zasteklitev in mehansko prezračevanje z vračanjem toplote odpadnega zraka samo priporočena, čeprav sta za doseganje energetskega razreda A ali B po energetski izkaznici nujna. Opredeljuje tudi smernice in računsko metodologijo za določanje energijskih kazalnikov stavb (Tehnične smernice za graditev TSG-1-004 Učinkovita raba energije). Pogoj za pridobitev gradbenega dovoljenja je med drugim tudi elaborat gradbene fizike za področje učinkovite rabe energije v stavbah (elaborat URE). Pri novogradnji in večjih prenovah stavb je treba izdelati tudi študijo izvedljivosti za alternativne energetske sisteme (AES). Le-ta vključuje okoljske, ekonomske, tehnične in funkcionalne izvedljivosti alternativnih sistemov oskrbe z energijo (Šijanec Zavrl, 2018).

*Dolgoročna strategija za spodbujanje naložb energetske prenove stavb (DSEPS)*

Leta 2015 je bila sprejeta Dolgoročna strategija za spodbujanje naložb energetske prenove stavb. Stavbni sektor predstavlja največji potencial za doseganje prihrankov energije, saj porabi dobro tretjino celotne energije. Cilji strategije za spodbujanje naložb v prenove stavb do leta 2020 oz. 2030 so:

- letno prenoviti 3 % javnih stavb ožjega javnega sektorja;
- prenova 1,8 mio $m^2$ stavb v širšem javnem sektorju (od teh vsaj tretjino v standardu skoraj nič-energijskih stavb) v obdobju 2014−2023;
- izboljšanje razmerja med vloženimi javnimi sredstvi in spodbujenimi naložbami v javnem sektorju na 1 : 3;
- izvedba petih demonstracijskih projektov energetske prenove različnih tipov zgradb.

Pričakuje se 9,1 mio $m^2$ prenovljenih površin stavb, od tega 6 mio $m^2$ stanovanjskih stavb, 1,8 mio $m^2$ javnih stavb in 1,3 mio $m^2$ stavb v zasebnem sektorju (Dolgoročna strategija za spodbujanje naložb energetske prenove stavb, 2015). Skladno z mednarodnimi zavezami in nacionalno zakonodajo si je Slovenija zastavila cilje za prehod na nizkoogljično družbo in sprejela strateško razvojne dokumente.




Slika 9: Sprejeti strateško razvojni dokumenti (Tahir idr., 2017).

*Uredba o zelenem javnem naročanju – ZeJN*

Javno naročanje mora temeljiti na načelih prostega pretoka blaga in storitev, svobode ustanavljanja prostega pretoka ter načelih gospodarnosti, učinkovitosti porabe javnih sredstev in uspešnosti v doseganju zastavljenih ciljev. Zagotavljati mora konkurenco med ponudniki, transparentnost javnega naročanja, enakopravno obravnavo ponudnikov in sorazmernost. Po drugi strani pa morajo gospodarski subjekti izpolnjevati obveznosti s področja okoljskega, socialnega in delovnega prava, veljavnih v pravu Evropske unije, Slovenije in v mednarodnem pravu (ZJN-3, 2015, str. 1–6). Javni sektor je eden izmed največjih potrošnikov, ki lahko s svojim okoljsko ozaveščenim obnašanjem pri naročanju okoljsko prijaznih izdelkov, storitev in gradenj ogromno pripomore k trajnostni potrošnji in proizvodnji. Javni organi v Evropi pogosto nakupa ne izvajajo le v okviru zelenih javnih naročil, ampak izvedejo trajnostna javna naročila, s čimer združujejo okoljska in socialna merila (Kupujte zeleno: priročnik o zelenih javnih naročilih, 2016, str. 4). Slovenija je že leta 2011 z Uredbo o zelenem javnem naročanju (Uredba

o ZeJN) pričela vključevati zahteve zelenega naročanja v postopke javnih naročil. Na podlagi uredbe so lahko okoljske zahteve tako vključene v opis predmeta javnega naročanja, v tehnične specifikacije, v pogoje za ugotavljanje sposobnosti ponudnika, v merila za izbor najprimernejše ponudbe ali v pogodbena določila (ZeJN, 2017).

*Trajnostni razvoj in gradnjo posredno obravnavajo tudi naslednji predpisi, pravilniki, uredbe:*

- Uredba o gradbenih proizvodih (305/2011/EC), kjer je vpeljana osnovna zahteva za stavbo glede trajnostne rabe naravnih virov;
- Zakon o gradbenih proizvodih (Uradni list RS, št. 82/13): posredno (s sklicem na Uredbo 305/2011/EC) predvideva osnovno zahtevo za gradbene proizvode (trajnostna raba naravnih virov);
- Zakon o vodah (Uradni list RS, št. 67/02, 2/04 – ZZdrI-A, 41/04 – ZVO-1, 57/08, 57/12, 100/13, 40/14 in 56/15);
- Uredba o odvajanju in čiščenju komunalne in padavinske odpadne vode (Uradni list RS, št. 88/11, 8/12, 108/13 in 98/15) – od 13. člena dalje;
- Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo (RS 64/2012);
- Uredba o oskrbi s pitno vodo (RS 88/2012);
- Pravilnik o oskrbi s pitno vodo (Uradni list RS, št. 35/06, 41/08, 28/11 in 88/12);
- Pravilnik o pitni vodi (Uradni list RS, št. 19/04, 35/04, 26/06, 92/06, 25/09 in 74/15);
- Uredba o odpadkih – neuradno prečiščeno besedilo (Uradni list RS, št. 37/15, 69/15);
- Uredba o ravnanju z odpadki, ki vsebujejo azbest (Uradni list RS, št. 34/08);
- Uredba o ravnanju z odpadki, ki nastanejo pri gradbenih delih (Uradni list RS, št. 34/08);
- Uredba o pogojih, pod katerimi se lahko pri rekonstrukciji ali odstranitvi objektov in pri vzdrževalnih delih na objektih, instalacijah ali napravah odstranjujejo materiali, ki vsebujejo azbest (Uradni list RS, št. 60/06);
- Odlok o strategiji prostorskega razvoja Slovenije (RS 76/2004);
- Uredba o mejnih vrednostih svetlobnega onesnaževanja okolja (Uradni list RS, št. 81/07, 109/07, 62/10 in 46/13);
- Uredba o okoljskem poročilu in podrobnejšem postopku celovite presoje vplivov izvedbe planov na okolje (Uradni list RS, št. 73/05);
- Zakon o ohranjanju narave;
- Nacionalni program varstva narave;

- Program upravljanja območij Natura 2000;
- Uredba o posegih v okolje, za katere je treba izvesti presojo vplivov na okolje (Uradni list RS, št. 51/14, 57/15 in 26/17);
- Uredba o vsebini poročila o vplivih nameravanega posega na okolje in načinu njegove priprave (Uradni list RS, št. 36/09 in 40/17);
- Uredba o okoljskem poročilu in podrobnejšem postopku celovite presoje vplivov izvedbe planov na okolje (Uradni list RS, št. 73/05);
- Pravilnik o prezračevanju in klimatizaciji stavb (Uradni list RS, št. 42/02, 105/02 in 110/02 – ZGO-1);
- Pravilnik o zaščiti pred hrupom v stavbah (Uradni list RS, št. 10/12);
- Pravilnik o zahtevah za zagotavljanje varnosti in zdravja delavcev na delovnih mestih (Uradni list RS, št. 89/99, 39/05 in 43/11 – ZVZD-1);
- Pravilnik o minimalnih tehničnih zahtevah za graditev stanovanjskih stavb in stanovanj (Uradni list RS, št. 125/03, 110/05 – popr. in 1/11) Tehnična smernica TSG-1-005:2012 Zaščita pred hrupom v stavbah;
- Pravilnik o zahtevah za zagotavljanje neoviranega dostopa, vstopa in uporabe objektov v javni rabi ter večstanovanjskih stavb (Uradni list RS, št. 97/03 in 77/09 – odl. US);
- Pravilnik o javnih natečajih za izbiro strokovno najprimernejših rešitev prostorskih ureditev in objektov (Uradni list RS, št. 108/04, 114/06 – ZUE, 33/07 – ZPNačrt in 57/12 – ZGO-1D).

# 4 Dejavavniki bivalnega zadovoljstva

Grum in Temeljotov Salaj (2013) sta presojala pričakovanja potencialnih kupcev stanovanjskih nepremičnin. Ugotovila sta, da sta centralno ogrevanje in spletni dostop določenim kategorijam kupcev najpomembnejša; poleg tega pa še možnost parkiranja, prometna povezava, velikost, svetlost, razgled, mirnost lokacije in zunanje površine. Golob, Bastič in Pšunder (2016) ugotavljajo, da se glavna skupina vplivnih dejavnikov, kot so kraj nepremičnine, lokacija nepremičnine, površina, stanje in starost nepremičnine, tehnologija gradnje in gospodarska rast, navezuje na prostorske tehnično-funkcionalne, gradbeno-komercialne in ekonomske dejavnike. Dognano je tudi, da si deležniki gradnje trajnost razlagajo različno. Izkazuje se potreba po enotnem modelu vključevanja kakovosti in ocenjevanja trajnostne uspešnosti. Srdić in Šelih (2011) predlagata standardizirano ocenjevanje, ki mora vključevati življenjski cikel stavbe (LCC) in življenjski krog proizvoda (LCA). Soočajo se s pomanjkljivimi informacijami o

stroških celotnega življenjskega kroga materialov, izdelkov, storitev itd. Raziskava, izvedena v slovenskem gradbeništvu, ki je veljalo za reprezentativni vzorec gradbene industrije novih članic EU, je pokazala, da je velik delež podjetij (77 %) vzpostavil okoljsko politiko, in sicer predvsem z nadzorom odpadkov, prihrankom energije in zmanjšanjem onesnaževanja zraka in vode. 46 % anketirancev ima sistem za upravljanje okolja, skladen s standardom ISO 14001, 8 % ima nestandardiziran sistem za upravljanje okolja, 35 % vprašanih pa je zagotavljalo, da bodo začeli izvajati ISO 14001 (Šelih, 2007). To je potrdilo dejstvo, da se lahko vzpostavi sistem za upravljanje z onesnaževanjem okolja, če je sistem upravljanja kakovosti že vzpostavljen. Nezadostnost okoljskih informacij o materialih, tehnologijah itd. preprečuje izdelavo zanesljivih ocen vplivov na okolje in predlogov za zmanjšanje le-teh (Šelih, 2007). Török, Košir in Dovjak (2016) so obravnavali celovito ocenjevanje trajnostnih vidikov gradnje na primeru enodružinske hiše. Raziskava je pokazala, da obstoječi viri literature o ocenjevanju trajnosti večinoma ne vključujejo zdravstvenega vidika, zato raziskava vpeljuje zdravstveni vidik, njegove kazalnike in cilje z namenom celovitega ocenjevanja trajnostnih vidikov gradnje (Török, Košir, Dovjak, 2016).

Špes (2008) ugotavlja, da za Slovenijo na splošno velja relativno dobra deklarativna ekološka ozaveščenost, bolj problematičen pa je velik razkorak z okoljskim ravnanjem in relativno slabim dejanskim okoljskim obnašanjem, zato je ena od ključnih nalog »trajnostne družbe«, da omogoča dostop do objektivnih informacij in zagotavlja udeležbo javnosti pri odločanju in s tem pomaga spreminjati tudi vzorce navad, ki imajo negativne vplive na okolje (Špes, 2008). Papler in Bojnec (2010) ugotavljata, da bi se lahko s primerno promocijo in informiranjem ter ustvarjanjem ekonomskih pogojev spodbudila proizvodnja in raba obnovljivih virov energije, v prometu pa bi bila potrebna preusmeritev na energetske vire z manjšimi emisijami $CO_2$.

Lockwood (2006) izpostavi besede predsednika podjetja Turner Construction Thomasa C. Lepperta. Ta pravi, da so štiri industrijske študije, ki so obsegale več kot 150 trajnostnih poslovnih objektov z LEED certifikatom v ZDA, izkazale, da so v povprečju dražje za 0,8 % (osnovni LEED certifikat) kot standardno grajene stavbe, čas gradnje pa je bil celo krajši. Ugotavlja, da so zeleni gradbeni materiali postali širše dostopni ter cenovno ugodnejši. Zelene stavbe povečajo produktivnost zaposlenih za približno 15 %, deloma tudi zato, ker uporabljajo alternativne gradbene materiale, ki ne oddajajo toksinov, kot je formaldehid, ki jih običajno najdemo v običajnih gradbenih materialih in na delovnih mestih (Lockwood, 206). Kats (2003a) je z analizo 33 ameriških trajnostnih stavb z LEED certifikatom v primerjavi s podobnimi

klasično grajenimi stavbami pokazal, da so trajnostne stavbe dokončane v letu 1995, 1997, 2000 dražje za okoli 2 %. Razlaga, da so stroški zelenega oblikovanja padli zaradi večjega števila zelenih zgradb in zaradi večjih izkušenj pri zeleni gradnji (Kats, 2003a).

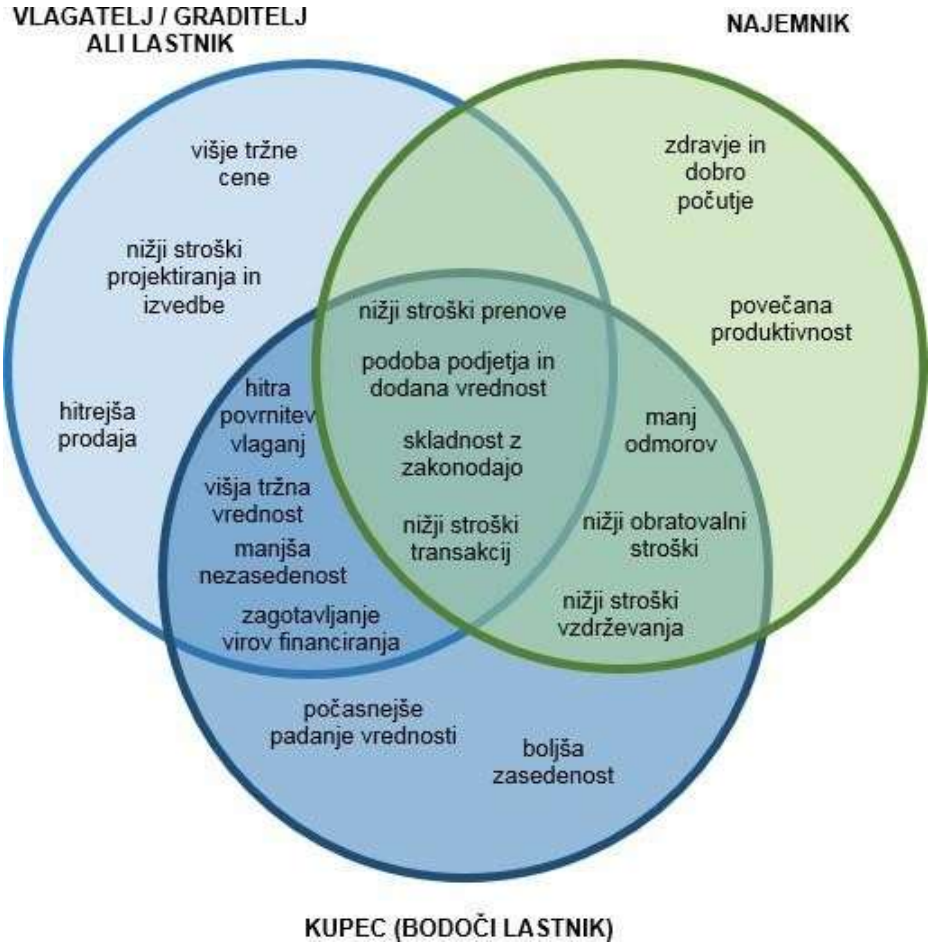
Prostorska konfiguracija, hrup, toplotno udobje, razsvetljava in kakovost zraka vplivajo na študente, učitelje in osebje, ki študirajo in delajo v ameriških šolah, kar dokazujejo mnoge študije kot npr. Colorado, preučevala pa je Heschong Mahone Group študija (Human & Social benefits of Green Building) (Olson, Kellum, 2003). Raziskava je bila izvedena v mestih Orange County, California, Seattle, Washington in Fort Collins, na vzorcu 21.000 osnovnošolcev. Raiskava je pokazala, da so v opazovanem obdobju enega leta učenci v naravno osvetljenih učilnicah dosegli pri računskih nalogah za 20 % in pri bralnih nalogah za 29 % boljše rezultate v primerjavi z učenci v učilnicah z manj dnevne svetlobe. Učenci v učilnicah z največjimi okenskimi površinami so pri matematiki napredovali 15 % hitreje in 23 % hitreje v branju kot tisti z najmanjšo okensko površino. Tudi učenci v učilnicah, kjer so lahko bila okna odprta, so napredovali 7–8 % hitreje kot študentje v učilnici s fiksnimi okni (Olson, Kellum, 2003). Kats (2003b) ugotavlja, da bi 2-% povečanje stroškov investicije v zeleno gradnjo v povprečju pomenilo prihranek v življenjskem ciklu 20 % vseh stroškov gradnje, torej več kot desetkrat več kot začetna naložba. Omenja raziskavo o zadovoljstvu najemnikov poslovnih stavb »*Kaj želijo najemniki*?« (1999 Poročilo BOMA/ULI), ki izkazuje, da so anketiranci največji pomen pripisali udobju, ki vključuje ugodno temperaturo zraka (95 %) in kakovost zraka v zaprtem prostoru (94 %). Temperatura zraka na delovnem mestu in možnost regulacije temperature sta bili na seznamu najpomembnejših dejavnikov. Prav tako sta bili izbrani na seznamu, ki je določal dejavnike, s katerimi so bili anketirani najmanj zadovoljni na svojem delovnem mestu. Najemniki pisarn zelo cenijo tudi inteligentne stavbne lastnosti kot npr. sodobni energetsko učinkoviti HVAC sistem in samodejne senzorji za razsvetljavo. Glede na študijo BOMA / ULI več kot 75 % poslovnih stavb nima teh inteligentnih lastnosti. Raziskava je pokazala, da bi bilo pripravljenih 72 % najemnikov, ki želijo inteligentno funkcijo, plačati višjo najemnino, da bi imeli funkcijo na voljo.

Burnett idr. (2008) so raziskovali reprezentativni vzorec arhitektov, inženirjev, izvajalcev in lastnikov stavb glede njihove vpletenosti, navad in dojemanja zelenih zgradb. Anketiranci so bili vprašali, da predvidijo vpliv zaključenih projektov zelene gradnje. Ocenili so:

- povprečno pričakovano znižanje obratovalnih stroškov med 8 % in 9 % (lastniki so bili bolj nagnjeni k pričakovanju zmanjšanja);

- pričakovano povprečno povečanje vrednosti stavb okoli 7,5 %;
- pričakovano povprečno izboljšanje donosnosti za 6,6 %;
- pričakovano povečanje zasedenosti za 3,5 %; in povprečno zvišanje najemnin za 3 %.

Na sliki 9 so prikazani dejavniki, ki odločajo o vlaganjih, nakupu ali najemu, ločeni na tiste, ki so pomembni le enemu udeležencu (izven preseka), dejavnike, ki so pomembni dvema udeležencema (presek med dvema udeležencema), in dejavnike, ki so pomembni vsem trem udeležencem (presek vseh treh udeležencev).




Slika 10: Vplivni dejavniki po udeležencih pri odločanju o vlaganjih, nakupu in najemu (Prirejeno po: The business case for green building: a review of the costs and benefits for developers, investors and occupants, 2013, str. 11)

Erdogan idr. (2008) poudarjajo, da na splošno stanovanjsko zadovoljstvo neposredno vplivajo zaznane življenjske razmere, medtem ko so zaznane življenjske razmere povezane z zadovoljstvom s fizičnim okoljem, zadovoljstvom z družbenimi odnosi, zadovoljstvom z delovanjem lokalne oblasti in zaznano kakovostjo stanovanja. objektov. Mnenja prebivalcev o njihovi soseski ponujajo pomembne vpoglede. Osvetljujejo, kateri vidiki okolja imajo večji vpliv na splošno zadovoljstvo bivalnega okolja (Adriaanse, 2007). Stanovanjska okolja je mogoče tipizirati z objektivnimi merili, kot so obdobje gradnje, arhitekturni slog, prostorska struktura, količina zelenih površin in geografska lega. „Železne spremenljivke“ sestave gospodinjstva, dohodka in starosti se na splošno primerjajo s stanovanjskimi značilnostmi in fizičnimi značilnostmi soseske. Relacije, ki jih to razkriva, se uporabljajo za razlago razlik v zadovoljstvu bivanja (Adriaanse, 2007). V preteklih letih se je pojavilo veliko zanimanje za poznavanje odzivov ljudi na njihovo stanovanjsko okolje in vpliva na njihovo življenje, zato je merjenje kakovosti stanovanj postalo pomembno orodje (Mohit idr., 2010). Zgodnje empirično delo o zadovoljstvu v stanovanju je uporabljalo bivariatne tehnike za identifikacijo korantov zadovoljstva znotraj določenih demografskih skupin (npr. etične skupine, študenti, starejši) ali v določenih vrstah mest. Kasnejši raziskovalci so uporabili multivariantne tehnike za testiranje modelov zadovoljstva z nizi spremenljivk, kot so: (1) individualne demografske značilnosti in objektivne značilnosti bivalnega okolja, (2) vmesne spremenljivke, sestavljene iz ocen različnih bivalnih značilnosti, (3) bivalno zadovoljstvo ( Erdogan idr., 2008). Ta študija daje tako akademske kot praktične prispevke. Akademski prispevek je raziskati naravo stanovanjskega zadovoljstva, praktični prispevek pa je uporaba predlagane večdimenzionalne lestvice kot diagnostičnega orodja za prepoznavanje področij, kjer so potrebne posebne izboljšave, in za določitev vidikov stanovanjskega zadovoljstva, ki zahtevajo delo..

Če se obrnemo na ugotovitve o zadovoljstvu soseske, sta Sirgy in Cornwell (2002) izvedla pregled literature o različnih atributih soseske, ki vplivajo na zadovoljstvo soseske. Te značilnosti so združene v fizične značilnosti (npr. vzdrževanje domov in dvorišč, urejanje okolice in ulična razsvetljava, gneča in raven hrupa, dostop do objektov in kakovost okolja); družbene značilnosti (npr. interakcije s sosedi in vezi v skupnosti, prostor za igre na prostem, kriminal in občutek zasebnosti doma); in ekonomske značilnosti (npr. vrednost stanovanja v soseščini, življenjski stroški v skupnosti, socialno-ekonomski status soseske in izboljšave soseske). Dokazi iz literature kažejo, da na bivalno zadovoljstvo vpliva široka paleta objektivnih in subjektivno zaznanih pogojev (Grum, Temeljotov Salaj, 2013; Grum, Kobal Grum, 2015). Raziskovalci še navajajo, da na bivalnost hiše ne vplivajo samo inženirski

elementi, temveč tudi družbeni, vedenjski, kulturni in drugi elementi v celotnem družbeno-okoljskem sistemu. Na determinante zadovoljstva vplivajo različna mnenja različnih strokovnih zaznav. Sem spadajo urbanisti in oblikovalci, arhitekti, okoljski psihologi in oblikovalci politik (Danquah, Afram, 2014). Urbanisti dajejo velik pomen socialnim vprašanjem in kakovosti življenja, kar kaže, da je stanovanje družbeno vprašanje, ki ne vključuje le njegove gradnje in okolja, temveč tudi zadovoljstvo v kakovost okolja (Sam idr., 2012). Arhitekti se strinjajo z urbanisti, da posledično to vpliva na kakovost življenja in psihosocialne vidike prebivalcev (Mohit idr., 2010). Okoljski psiholog je identificiral dva glavna parametra, in sicer osrednjost in socialno-fizične značilnosti prebivalcev. Ti vključujejo družbene in sosedske odnose, družbene dejavnosti, socialne objekte, pokrajino in komunalne storitve (Sam idr., 2012) trdijo, da je stanovanjsko zadovoljstvo odraz občutkov zadovoljstva in veselja v stanovanjskem območju (Sam idr., 2012). ). Zadovoljstvo s stanovanjem so oblikovalci politik obravnavali kot glavni dejavnik pri pripravi smernic za gradnjo stanovanj za različne ljudi (Sam idr., 2012).

Danquah in Afram (2014) povzetek ugotovitev iz literature v zvezi z različnimi perspektivami strokovnjakov opozarjata na deset parametrov, ki vplivajo na bivalno zadovoljstvo. Po njih so to: (1) soseska, (2) socialnodemografske značilnosti, (3) značilnosti stanovanjske enote, (49 podpornih storitev stanovanjskih enot, (5) stanovanjske razmere, (6) tip strukture, (7) stanovanja in posestvo upravljanje, (8) objekti v naseljenem okolju, (objekti v naseljenem okolju, (9) okoljske značilnosti stanovanja, (10) sosedski odnosi. Literatura dokumentira določene parametre, ki napovedujejo zadovoljstvo ljudi v bivalnem okolju. Nekateri raziskovalci (Danquah, Afram, 2014; Grum, Temeljotov Salaj, 2013; Grum, Kobal Grum, 2015) trdijo, da so stanovanjske razmere eden od glavnih parametrov pri določanju bivalnega zadovoljstva (velikost stanovanja, prisotnost balkona, naravna osvetlitev, mir, starost stavbe in soseske, možnosti parkiranja, infrastruktura stanovanja), dajejo tudi to lokacijo in dejavnike bivalnega okolja (lokacija, bližina vitalnih objektov, dostopnost, prometne povezave), socialno-ekonomske dejavniki (stroški vzdrževanja, sosedski odnosi, občutek varnosti, občutek socialne povezanosti, občutek ustreznega ekonomskega statusa) so pomembni parametri pri določanju bivalnega zadovoljstva.

# 5 Rezultati in interpretacija

## 5.1 Raziskovalna metoda in vzorec

Podatke smo zbirali s kvantitativno metodo anketiranja, s čimer smo v celoti zaobjeli problematiko, zastavljeno skozi raziskovalna vprašanja in hipoteze. Želeli smo analizirati prepoznavnost trajnostnega razvoja urbanega prostora, trajnostne gradnje in trajnostnega vrednotenja stavb ter razširjenost prakse uporabe le-teh. V želji po heterogenosti vzorca smo povezavo do anketnega vprašalnika, oblikovanega s pomočjo spletnega orodja 1KA, objavili na Facebooku in poslali znancem, sodelavcem, prijateljem, ki strokovno delujejo na področju gradnje, investicij, raziskav v obnovljive vire iz vseh statističnih regij ter nekaterim zbornicam, kot so Inženirska zbornica Slovenije, Zbornica za arhitekturo in prostor Slovenije ter Slovensko združenje za trajnostno gradnjo – Green Building Council Slovenija. Prav tako je bila povezava do slovenske in angleške različice anketnega vprašalnika objavljena na drugih socialnih medijih z možnostjo delitve. Med naslovniki so bile osebe obeh spolov. Vzorčenje je potekalo po metodi snežne kepe. Znanci, sodelavci in prijatelji so bili zaprošeni, da k izpolnjevanju povabijo svoje znance. Anonimnost podatkov je bila zagotovljena. Na podlagi ocene spletnega portala 1KA je bila v smislu kompleksnosti anketa opredeljena kot zahtevna, v smislu dolžine pa kot srednje dolga anketa. Trajanje izpolnjevanja ankete je bilo ocenjeno na slabih 10 minut.

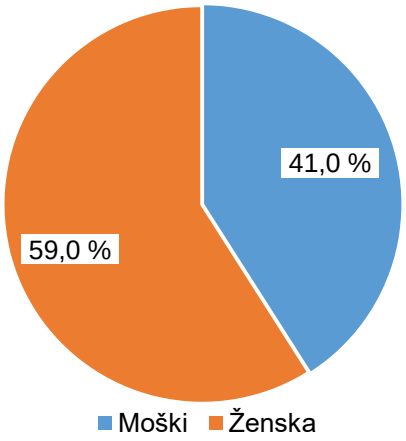
Anketa *Vloga trajnostne gradnje pri vrednotenju nepremičnin* (angl. The role of sustainable construction in real estate valuation) je bila aktivna julija in avgusta 2020. Anketa je vsebovala 21 vprašanj, 18 vprašanj je bilo zaprtega tipa, kjer so bili odgovori na vprašanja že podani, 3 vprašanja so bila odprtega tipa, kjer smo od anketirancev želeli izvedeti konkretne razloge za določene odločitve, 3 vprašanja pa so bila pogojena. V prvem začetnem delu je anketni vprašalnik vseboval demografska vprašanja. Glede na to, da smo v okviru raziskave ugotavljali tudi vpliv spola na raziskovalna vprašanja, je bilo prvo demografsko vprašanje povezano s spolom posameznega anketiranca. Drugo demografsko vprašanje se je nanašalo na starost anketirancev, saj nas je zanimala starostna skupina mlajših do 35 let. Z demografskimi vprašanji smo analizirali tudi strokovno izobrazbo anketirancev in področje zaposlitve. V nadaljevanju so sledila vprašanja, ki so nam bila v pomoč pri raziskavi štirih ključnih sklopov empiričnega dela. Pridobljene podatke smo uredili in analizirali s programom MS Excel 2013, kjer smo izdelali frekvenčne izračune, izračune odstotkov in srednjih vrednosti ter rezultate prikazali v tabelarični in grafični obliki. Vprašanja so obravnavala pojme, kot so trajnostni razvoj urbanega

prostora, trajnostna gradnja in merila trajnostnega vrednotenja stavb ter kriterije trajnostne gradnje.

V zadnjem sklopu vprašanj smo obravnavali ekonomske dejavnike, ki vplivajo na odločitev za investicijo v okolju prijazno naložbo, možnosti subvencij oziroma nepovratnih sredstev in ugodnejših kreditov za takšne naložbe ter pomembnost nekaterih predlaganih ukrepov in politik izboljšav za rast okolju prijaznih naložb v Sloveniji.

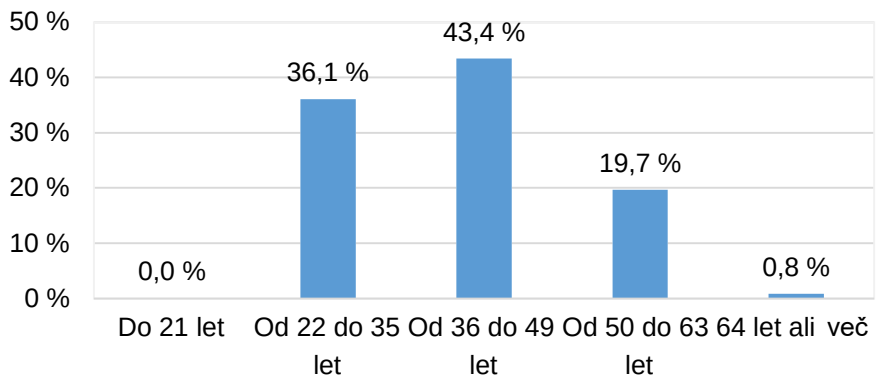
Anketni vprašalnik v slovenskem in angleškem jeziku je izpolnjevalo 134 anketirancev, pri čemer jih 12 ni zadovoljivo rešilo oz. podalo vseh odgovorov, zato smo jih izločili iz nadaljnje analize. Raziskovalni vzorec je tako vključeval 122 ustrezno rešenih anket. Želimo še poudariti, da je anketni vprašalnik v angleškem jeziku kliknilo 92 ljudi, nagovor pa 378 ljudi. Anketni vprašalnik v slovenskem jeziku je kliknilo 144, nagovor pa je dosegel 268 klikov. V nadaljevanju najprej prikazujemo anketni vzorec glede na 4 demografske spremenljivke. Demografski podatki o anketirancih, ki smo jih zabeležili, so: spol, starost, stopnja dosežene formalne izobrazbe in področje zaposlitve. Rezultati so prikazani grafično.

Graf 1: Spol anketirancev



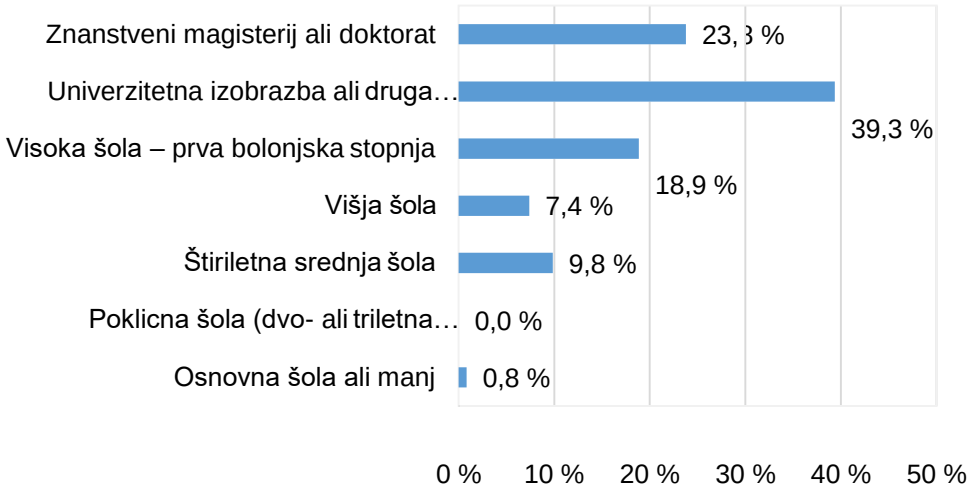

Anketiranci so opredelili, v katero starostno skupino sodijo. Anketo je izpolnilo 59,0 % žensk in 41,0 % moških. Izkazalo se je, da je skoraj polovica ali natančneje 43,4 % anketiranih starih od 36 do 49 let. Nekaj več kot tretjina anketirancev (36,1 %) je bilo starih od 22 do 35 let, slaba petina anketirancev (19,7 %) pa od 50 do 63 let. Mlajših od 21 let ni bilo, starejših od 65 let pa je bilo le za pol odstotka.

Grafi 2: Starostna skupina anketirancev



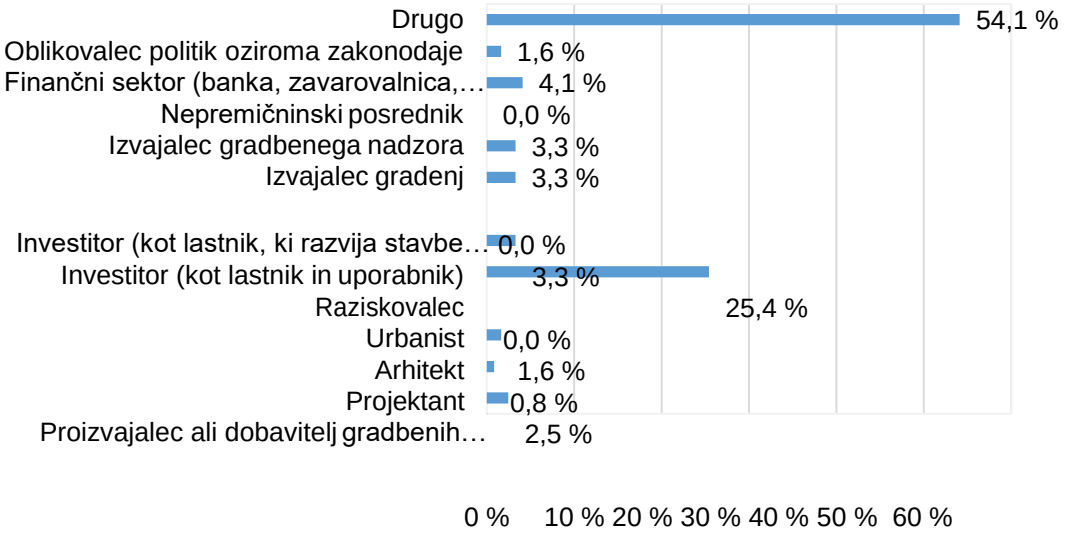

Pri izobrazbeni strukturi v vzorcu zaznamo, da prevladujejo višje izobraženi anketiranci, saj je kar 89,4 % anketirancev imelo doseženo najmanj višješolsko izobrazbo. Skoraj četrtina ali 23,8 % anketirancev je imela najvišjo izobrazbo, torej znanstveni magisterij ali doktorat. Največji odstotek anketirancev (39,3 %) pa je imel univerzitetno izobrazbo. Le 0,8 % je bilo anketirancev z dokončano osnovno šolo ali manj.

Graf 3: Najvišja stopnja dosežene formalne izobrazbe anketirancev




Pri zaposlitvenem statusu anketirancev smo ugotovili, da je slaba polovica anketirancev, natančneje 45,9 %, zaposlena v stroki obravnavane tematike, dobra polovica, natančneje 54,1 %, pa je zaposlena na področjih, ki niso povezana s stroko

Graf 4: Zaposlitev anketirancev




Pridobljeni rezultati iz kvantitativne metode, tj. anketnega vprašalnika, nam podjajo odgovore na raziskovalna vprašanja, ki smo jih raziskovali znotaj zastavljenih hipotez:

***Hipoteza 1*:** Začetni ocenjeni stroški investicije primarno vplivajo na odločitev o naložbi, zato vidiki trajnostne gradnje v večini niso upoštevani.

***Hipoteza 2*:** V Sloveniji so subvencije Eko sklada kot tudi ugodnejši krediti za okolju prijazne investicije nezanimive, predvsem zaradi administrativno zahtevnih in dolgotrajnih postopkov. Uvedba certifikatov trajnostne gradnje, dostopnost nepovratnih sredstev in ugodnejši krediti so ključni dejavniki pri oblikovanju zakonodaje s področja trajnostne rabe urbanega prostora in trajnostne gradnje objektov.

## 5.2 Stroškovni vpliv na odločitev za investicijo, gradnjo, nakup trajnostne grajene stavbe

***Hipoteza 1*:** Začetni ocenjeni stroški investicije primarno vplivajo na odločitev o naložbi, zato vidiki trajnostne gradnje v večini niso upoštevani.

V hipoteze smo postavili tri ključna raziskovalna vprašanja, s katerimi smo primarno želeli izvedeti več o ekonomski trajnosti, torej, ko sta družbeni in okoljski trajnostni razvoj tudi finančno izvedljiva. Spraševali smo se, kaj vpliva na odločitev za investicijo oziroma gradnjo ali nakup certificirane trajnostno grajene stavbe, zato nas je zanimalo sledeče: ali prihaja sploh

do razhajanj med željami lastnika kot investitorja, ki bo hkrati tudi uporabnik stavbe, in

investitorja, ki ima v mislih samo zaslužek od oddaje v najem, ali se raje odločamo na podlagi začetnih stroškov oziroma ocene investicije, kar pomeni, da so materiali in tehnologije izbrani na podlagi najnižjih stroškov gradnje in ne na podlagi prednosti, ki bi jih (drugačna) izbira prinesla v času življenjske dobe stavbe ter kako ocenjujemo finančno ustreznost nepovratnih sredstev Eko subvencij.

Za potrebe razioskovanaj smo si zastavili raziskovalno vprašanje:
*Ali prihaja do razhajanj med željami lastnika kot investitorja, ki bo hkrati tudi uporabnik stavbe, in investitorja, ki ima v mislih samo zaslužek od oddaje v najem?*

Rezultati so prikazani tabelarično in grafično.

Tabela 1: Odločitev o gradnji oziroma nakupu trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene

| | | f | f % |
|---|---|---|---|
| Da | | 46 | 37,7 |
| Ne vem | | 51 | 41,8 |
| Ne | | 9 | 7,4 |
| Me ne zanima | | 16 | 13,1 |
| Skupaj | | 122 | 100,0 |

Največ anketirancev (41,8 %) ne ve, če bi se odločili za nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene. Več kot tretjina anketirancev (37,7 %) bi se odločila za gradnjo oziroma nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene, medtem ko nekaj več kot desetino anketirancev (13,1 %) to ne zanima. Najmanj anketirancev (7,4 %) se zagotovo ne bi odločilo za omenjeno investicijo.

Kot izhaja že iz teoretičnega dela raziskave, merila za trajnostno stavbo določajo pomembnejše kazalnike, in sicer okoljske, ekonomske, družbeno in funkcionalne kazalnike, tehnične in procesne indikatorje ter indikatorje lokacije. Udeleženci, ki bi se odločili za gradnjo oziroma nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene (37,7 %), so obrazložili odločitev po ključnih sledečih sklopih: najpomembnejši vidik, tj. »družbene in funkcionalne kazalnike«, so omenili največkrat, natančneje 20-krat, sledita »okoljski

kazalniki«, omenjeni 14-krat, in »ekonomski kazalniki«, omenjeni 13-krat. Le dvakrat je bil omenjen vidik »skrbi za prihodnost«, najmanj oziroma enkrat pa »osebna odgovornost«, ki ju tudi lahko uvrstimo med »družbene in funkcionalne kazalnike«.

Razloge za gradnjo oziroma nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene, ki so jih anketiranci navedli, bi lahko strnili v:

- Družbene in funkcionalne kazalnike – *»zaradi boljšega bivalnega počutja«, »zaradi zdravega bivalnega okolja«, »ker bi rada živela v okolju, ki je prijazno zdravju«, »kakovost bivanja«, »udobje«, »saj bi želela živeti v človeku prijaznem in zdravem okolju ter ker se zavedam kakovosti življenja v taki stavbi«, »dobro počutje«, »zdravju prijazno okolje«, »ugodno počutje«, »kakovost bivanja«, »zdravju prijazno«, »ker dolgoročno prinaša boljše pogoje za bivanje«, »varstvo ljudi«, »kvalitete bivanja«, »zaradi dobrega počutja v stavbi«, »dobro počutje«, »zdravje«, »zaradi ugodnega vpliva na zdravje«, »ker je meni prijazen objekt«, »ker je naložba za prihodnost tudi drugim generacijam«, »ker mi ni vseeno za generacije za menoj«.*
- Okoljske kazalnike – *»manjšega vpliva na okolje«, »zaradi zaskrbljenosti s splošnim stanjem okolja in podnebnimi spremembami«, »okolju prijazno«, »z gradnjo ne bi želela pustiti prevelikega odtisa v naravo«, »min vplivi na okolje«, »odgovornost do okolja«, »varovanje okolja«, »varstvo okolja«, »ker s tem želim zmanjšati negativni vpliv na okolje v skladu z načeli trajnostne gradnje«, »zato ker vem, da moramo varčevati z energijo in materiali in zanamcem omogočiti, da živijo ›polno življenje‹«, »verjamem v pomembnost trajnostne gradnje«, »I dont want to participate on harming environment«, »zmanjšanje odpadkov/manjši poseg v naravo in sobivanje z njo«, »because it is globally better (environmentally), environmental consciousness«, »okolju prijazen objekt«, »why not to take personal responsibility and to demonstrate that it is feasible«.*
- Ekonomske kazalnike – *»nižji obratovalni stroški«, »if done correctly, the building can pay for the extra initial investment through energy savings«, »varčnost«, »manjši stroški«, »min stroški uporabe«, »v želji po prihrankih (stroški)«, »ker dolgoročno prinaša nižje stroške in boljše pogoje za bivanje«, »zaradi stroškov obratovanja«, »najbrž bi dobila kakšno olajšavo pri nakupu«, »zaradi nižjih stroškov obratovanja«, »stroškov uporabe in vzdrževanja«, »because it is globally better (financially)«, »economic advantages«.*

Drugi del anketirancev, ki se zagotovo ne bi odločili za gradnjo oziroma nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene (7,4 %), je obrazložil, da ključno vlogo odigra ekonomski kazalnik, torej stroškovni vidik. Le ena oseba je omenila, da že ima zagotovljen bivalni prostor (»že imam hišo, zato ne rabim«) in se zato ne bi odločila za tovrstno investicijo. Ekonomski/stroškovni vidik je narekoval naslednje odgovore: *»pričakovana previsoka cena«, »previsoka cena«, »predrago«, »if I can do it financially, I will buy a sustainable building«, »too expensive«.*

Graf 5: Odločitev o gradnji oziroma nakupu trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene

Tabela 2: Odločitev za pridobitev certifikata trajnostne gradnje v primeru gradnje oziroma nakupa trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene

| | f | f % |
|---|---|---|
| Da | 22 | 47,8 |
| Ne | 24 | 52,2 |
| Skupaj | 46 | 100,0 |

Od anketirancev (37,7 %), ki bi se odločili za gradnjo oziroma nakup trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene, bi se jih slaba polovica, natančneje 47,8 %, odločila za pridobitev certifikata trajnostne gradnje, medtem ko se jih 52,2 % za pridobitev certifikata trajnostne gradnje ne bi odločila. Razlogi, zakaj bi se odločili za pridobitev omenjenega certifikata, so v največji meri na strani ekonomskega/stroškovnega vidika, ki je bil omenjen 11-krat, kot potrdilo o ustreznosti/kvaliteti pa je bil omenjen 7-krat.

Skladno z merili za trajnostno stavbo lahko strnemo navedene razloge v pomembnejše kazalnike:

- Ekonomski kazalniki – *»če bi pri tem dobila povračilo plačila certifikata s strani države«, »da bi zadostili predpisom in potencialnim zahtevam v prihodnosti glede prodaje«, »če mi poveča vrednost nepremične«, »so that the measurements of energy savings are verified and it could potentially help resale«, »če bi stavbo gradila za trg, bi se odločila«, »saj je to dodatna možnost za zvišanje tržne vrednosti, zakaj pa ne«, »certifikat zagotovo tudi upraviči vrednost nepremičnine«, »zaradi morebitne prodaje«, »might increase market values«, »zaradi boljših pogojev za prodajo prostorov v prihodnosti«, »če bi stavbo gradila za sebe, omenjenega certifikata ne bi iskala«.*
- Kot potrdilo o ustreznosti/kvaliteti, ki bi ga lahko uvrstili med ekonomske ali družbene in funkcionalne kazalnike in okoljske kazalnike – *»nenazadnje pa tudi zato, da je stavba ustrezno in pravilno grajena in trajna«, »ker bi tako vedel, da je stavba res trajnostno zgrajena«, »sicer zadev ne poznam, a certifikat je le certifikat in nosi svojo zgodbo in pogodbo«, »ker bi bila bolj prepričana, da je gradnja trajnostna«, »kot potrdilo«, »saj tako zagotavljamo kvaliteto gradnje in upoštevanje okoljskih standardov«, »to get confirmation«.*

Posamično sta bila izpostavljena sledeča vidika:

- Okoljski kazalnik – *»the correct standard that deals most with energy efficiency would be best«.*
- Družbeno in funkcionalni kazalnik – »*samo pozitivni učinki na bivanje in počutje«.*
  Več kot polovica anketirancev, ki pri gradnji oziroma nakupu trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene, se ne bi odločila za pridobitev certifikata. Kot najpomembnejši razlog so navedli ekonomski/stroškovni vidik, in sicer 12-krat, na drugem mestu je 6-krat omenjen razlog nezaznanega interesa, sledi 4-krat omenjen razlog o predolgih postopkih pridobitve certifikata ter 3-krat omenjen razlog v prenizki informiranosti o ugodnostih, ki jih certifikat lahko doprinese.

Skladno z merili za trajnostno stavbo lahko strnemo navedene razloge v pomembnejše kazalnike, in sicer:

- Ekonomski kazalniki – *»se mi zdi, da bi bilo finančno obremenjujoče«, »ne pričakujem subvencioniranje gradnje«, »zaradi stroškov«, »stroški dodatni«, »ker (še) nima tržne vrednosti«, »I do not believe it is efficient«, »trenutno je ta proces v Sloveniji verjetno še*

*vedno predrag«, »v primerjavi z investicijo nepremičnina še ne doseže želene tržne vrednosti«, »stroškovno zahteven postopek«, »odvisno od stroška financiranja«, »zaradi stroška, ki ga certificiranje zahteva ter zaradi lastne uporabe zgradbe smernice pa lahko upoštevamo pri projektiranju v vsakem primeru«, »if it would be linked to load/morgage, then maybe i would think about it«.*

- Ni zaznanega interesa – *»me ne zanima«, »ker mi ni pomemben«, »not important to me«, »I don't need certificate if I know it is sustainable«, »ni pomembno«, »odločil bi se za gradnjo po načelih trajnostne gradnje brez komercialnega certifikata«.*
- Prenizka ozaveščenost – *»ne poznam prednosti pridobitve certifikata«, »imam premalo info«, »v primeru bivanjske enote v tem ne vidim prednosti, morda v primeru poslovne enote«.*
- Predolgi administrativni postopki – *»dolgi postopki pridobivanja certifikata«, »verjetno je postopek pridobivanja zahteven«, »dolgotrajen«, »dolg proces pridobivanja«.*

Grafi 6: Odločitev za pridobitev certifikata trajnostne gradnje v primeru gradnje oziroma nakupa trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene

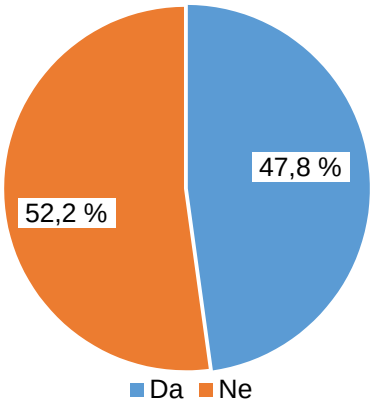



Tabela 3: Odločitev za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni

| | f | f % |
|---|---|---|
| Da | 65 | 53,3 |
| Ne | 39 | 32,0 |
| Me ne zanima | 18 | 14,8 |
| Skupaj | 122 | 100,0 |

Dobra polovica (53,3 %) anketirancev bi se odločila za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni. Skoraj ena tretjina (32,0 %) se ne bi odločila za nakup certificirane stavbe pri višji ceni, medtem ko 14,8 % anketirancev nakup certificirane stavbe ne zanima.

Graf 7: Odločitev za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni

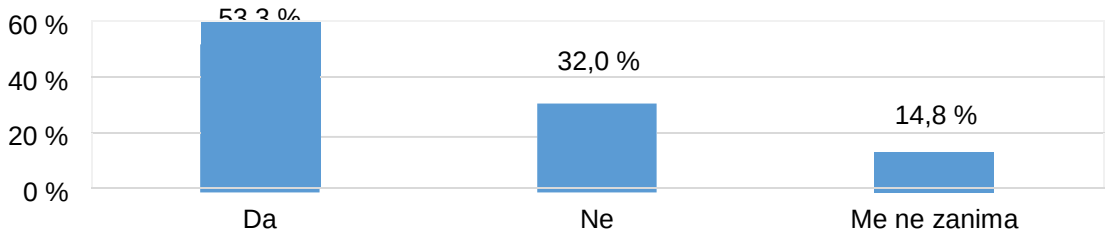



Tabela 4: Pripravljenost za višji finančni vložek v certificirano trajnostno grajene stavbe v primerjavi s klasično grajenimi stavbami

| | f | f % |
|---|---|---|
| Od 3 % do 5 % | 23 | 35,4 |
| Od 5 % do 15 % | 41 | 63,1 |
| Od 15 % do 30 % | 1 | 1,5 |
| Skupaj | 65 | 100,0 |

Največ anketirancev (63,1 %) je pripravljenih plačati od 5 % do 15 % več za certificirano trajnostno grajene stavbe, Dobra tretjina (35,4 %) je pripravljena plačati najmanjši ponujeni delež, in sicer od 3 % do 5 %, medtem ko je le ena oseba (1,5 %) pripravljena plačati od 15 % do 30 % več za certificirano trajnostno grajeno stavbo v primerjavi s klasično grajeno stavbo.

Graf 8: Pripravljenost za višji finančni vložek v certificirano trajnostno grajene stavbe v primerjavi s klasično grajenimi stavbami

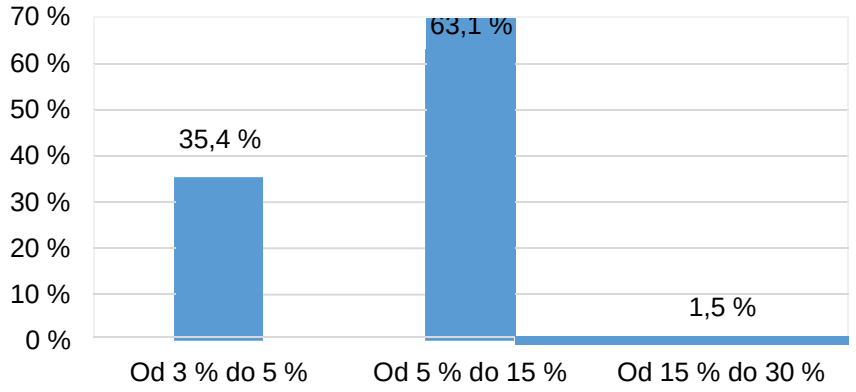



Tabela 5: Odločitev za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in možnosti višje najemnine

| | f | f % |
|---|---|---|
| Da | 65 | 53,3 |
| Ne | 34 | 27,9 |
| Me ne zanima | 23 | 18,9 |
| Skupaj | 122 | 100,0 |

Več kot polovica anketirancev (53,3 %) bi se odločila za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in možnosti višje najemnine, dobra četrtina (27,9 %) se ne bi odločila za nakup, medtem ko skoraj petine (18,9 %) gradnja certificirane trajnostno grajene stavbe za namene oddaje v najem ne zanima.

Graf 9: Odločitev za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in možnosti višje najemnine

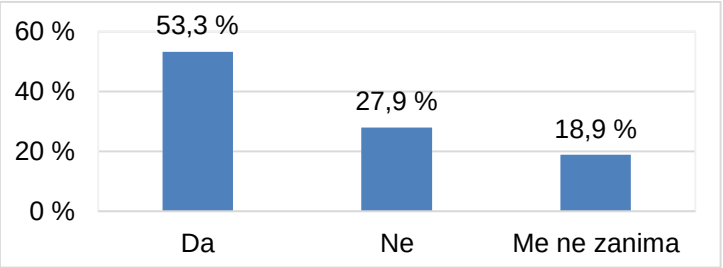
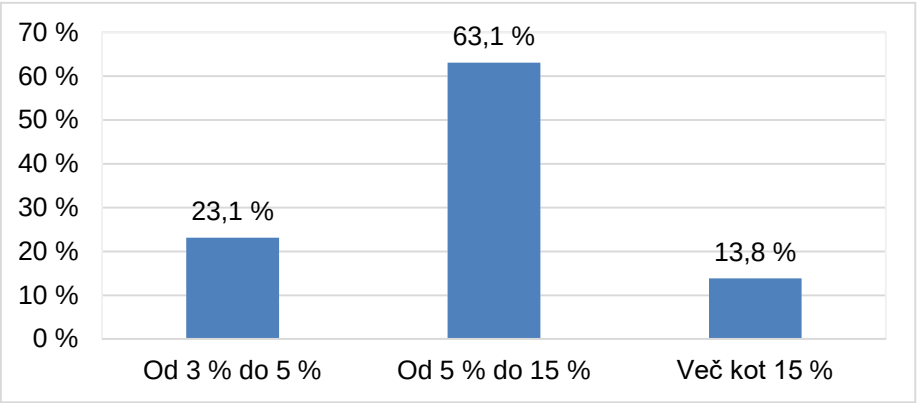


Tabela 6: Ocena pričakovanih višjih prihodkov pri odločitvi za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem

| | f | f % |
|---|---|---|
| Od 3 % do 5 % | 15 | 23,1 |
| Od 5 % do 15 % | 41 | 63,1 |
| Več kot 15 % | 9 | 13,8 |
| Skupaj | 65 | 100,0 |

Od anketirancev (53,3 %), ki bi se odločili za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in možnosti višje najemnine, bi jih 63,1 % pričakovalo najvišji delež povišanja najemnine, tj. od 5 % do 15 %. Skoraj četrtina bi pričakovala višjo najemnino s srednjo vrednostjo, tj. od 3 % do 5 %, nekaj več kot desetina pa bi jih pričakovala več kot 15-% povišanje prihodkov z naslova oddajana v najem.

Graf 10: Ocena pričakovanih višjih prihodkov pri odločitvi za gradnja certificirane trajnostno grajene stavbe za namene oddaje v najem




Iz analize sodeč bi se dobra polovica anketirancev (53,3 %) odločila za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni. Od tega je 63,1 % anketirancev pripravljenih plačati za certificirano stavbo od 5 % do 15 % več v primerjavi s klasično grajeno stavbo; dobra tretjina anketirancev, natančneje 35,4 %, pa od 3 % do 5 % več. Le en anketiranec (1,5 %) je pripravljen odšteti od 15 % do 30 % več za certificirano stavbo. 53,3 % anketirancev bi se odločilo za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in

možnosti višje najemnine. 63,1 % anketirancev, ki je pripravljenih oddajati v najem z možnostjo višje najemnine, pričakuje od 5 % do 15 % višje prihodke iz naslova oddaje. 13,8 % anketirancev pričakuje več kot 15 % višje prihodke, medtem ko nekaj več kot petina oziroma 23,1 % pričakuje od 3 % do 5 % višje prihodke. Sklepamo lahko, da prihaja do razhajanj med željami lastnika kot investitorja, ki bo hkrati tudi uporabnik stavbe, in investitorja, ki ima v mislih samo zaslužek od oddaje v najem. Tisti investitor, ki bo hkrati tudi uporabnik stavbe, je pripravljen plačati nekoliko več za začetno investicijo, vendar pričakuje bolj kakovostne pogoje bivanja in nižje uporabne/vzdrževalne stroške stavbe. Prav tako bi se investitor pri oddajanju v najem odločil za gradnjo certificirane trajnostno grajene stavbe, a le pod pogojem, da lahko iztrži višje prihodke iz naslova oddajanja. Najbolj se nagiba k povišanju najemnine od 5 % do 15 %, kolikor je tudi pripravljen sam več plačati za certificirano stavbo v primerjavi s klasično grajeno stavbo, katero bi uporabil za lastne namene bivanja ali lastno uporabo. Predpostavljamo lahko, da ima certifikat, torej trajnostno vrednotenje stavb kot dokazilo, potrdilo oziroma merilo, med anketiranci zaznan pomen.

Za potrebe razisakve smo si zastavili nadaljno raziskovalno vprašanje:
*Ali se prebivalci Slovenije odločajo na podlagi začetnih stroškov oziroma ocene investicije, kar pomeni, da so materiali in tehnologije izbrani na podlagi najnižjih stroškov gradnje in ne na podlagi prednosti, ki bi jih (drugačna) izbira prinesla v času življenjske dobe stavbe? Na primer pri stavbnem pohištvu so prednosti lesenih oken s trojno zasteklitvijo pogosto zanemarjene, saj v večini pri izbiri prevlada nižja cena enojno zastekljenih oken, največkrat iz PVC materiala.*

Rezultati so predstavlji grafično oz. tabelarično.

Tabela 7: Pomembnost izbire notranjega okolja, ki z naravnimi materiali in s posnemanjem naravnih oblik, vzorcev ter procesov pozitivno stimulira čute in psihično doživljanje pri gradnji, nakupu ali najemu stavbe

| | f | f % |
|---|---|---|
| Da, mi je pomembno | 76 | 62,3 |
| Niti pomembno niti nepomembno | 27 | 22,1 |
| Ne, ni mi pomembno | 17 | 13,9 |
| Me ne zanima | 2 | 1,6 |
| Skupaj | 122 | 100,0 |

Več kot polovici anketirancem (62,3 %) je pri gradnji, nakupu ali najemu stavbe pomembna izbira notranjega okolja, ki z naravnimi materiali in s posnemanjem naravnih oblik, vzorcev ter procesov pozitivno stimulira čute in psihično doživljanje. Malo več kot desetini, (13,9 %) slednje ni pomembno, medtem ko skoraj petina anketirancev (22,1 %) ni indiferentna do omenjene izbire okolja. Le dveh oseb (1,6 %) slednje ne zanima.

Graf 11: Pomembnost izbire notranjega okolja, ki z naravnimi materiali in s posnemanjem naravnih oblik, vzorcev ter procesov pozitivno stimulira čute in psihično doživljanje pri gradnji, nakupu ali najemu stavbe

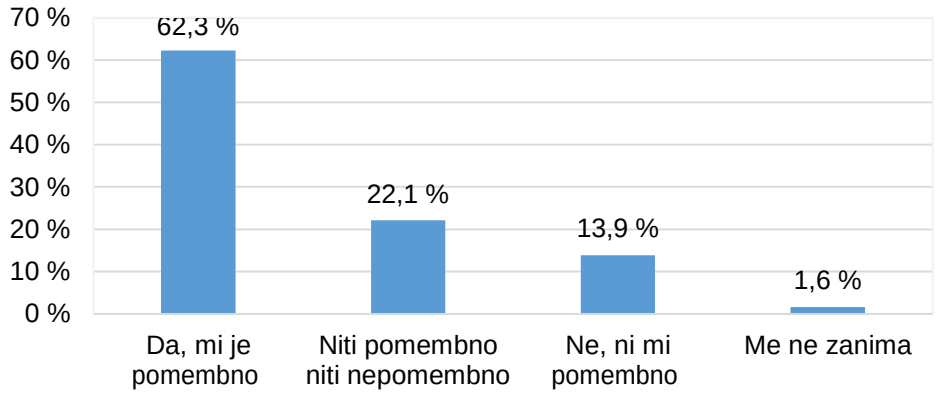


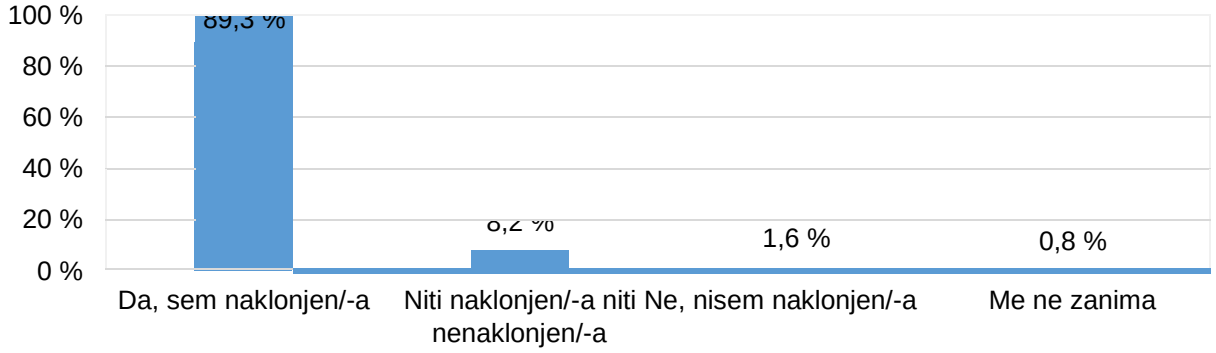

Tabela 8: Naklonjenost k razširitvi deleža zelenega oblikovanja stavb in notranjih okolij v naslednjih letih v Sloveniji za boljše počutje in produktivnost

| | f | f % |
|---|---|---|
| Da, sem naklonjen/-a | 109 | 89,3 |
| Niti naklonjen/-a niti nenaklonjen/-a | 10 | 8,2 |
| Ne, nisem naklonjen/-a | 2 | 1,6 |
| Me ne zanima | 1 | 0,8 |
| Skupaj | 122 | 100,0 |

Večinoma, kar 89,3 %, so anketiranci naklonjeni temu, da bi se v naslednjih letih v Sloveniji razširil delež zelenega oblikovanja stavb in notranjih okolij, s čimer bi se izboljšalo njihovo počutje in produktivnost. Slaba desetina, natančneje 8,2 %, ni niti naklonjena niti nenaklonjena, dva anketiranca, tj. 1,6 %, nista naklonjena, medtem ko enega anketiranca (0,8 %) omenjena

tematika sploh ne zanima.

Graf 12: Naklonjenost k razširitvi deleža zelenega oblikovanja stavb in notranjih okolij v naslednjih letih v Sloveniji za boljše počutje in produktivnost




Na osnovi povprečnih vrednosti lahko trdimo, da so anketirancem bolj pomembni kakovostno bivanje, torej dobro počutje v stavbi (npr. naravna svetloba, zvočna izolacija, kakovosten zrak itd.), funkcionalnost prostora ter okolju in zdravju ljudi prijazni materiali, ki ne vsebujejo škodljivih kemikalij kot začetni stroški oziroma ocena investicije. To pomeni, da so v začetno investicijo pripravljeni vložiti več, zato da lahko uživajo prednosti, ki jih prinaša življenjska doba stavbe, torej kakovostno bivanje ter nižji stroški uporabe in vzdrževanja stavbe. Te ugotovitve o pomembnosti izbire notranjega okolja potrjujejo tudi trditev, da je anketirancem bolj pomembno kakovostno bivanje, saj jih je več kot 62,3 % odgovorilo, da je pri gradnji, nakupu ali najemu stavbe pomembna izbira notranjega okolja, ki z naravnimi materiali in s posnemanjem naravnih oblik, vzorcev ter procesov pozitivno stimulira čute in psihično doživljanje.

Za potrebe nadlajnega razziskovanja smo si zastavilči raziskovalno vprašanje:
*V Sloveniji obstajajo možnosti subvencij Eko sklada oziroma prejema nepovratnih sredstev in ugodnejših kreditov za okolju prijazne naložbe, ki so namenjeni fizičnim osebam, gospodarstvu in javnemu sektorju. Ali anketiranci ocenjujejo, da so nepovratna sredstva Eko subvencij finančno ustrezna?*

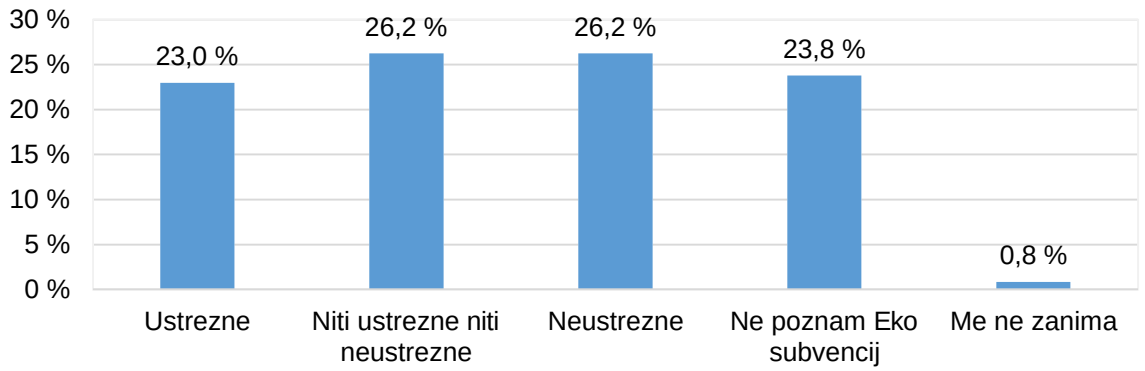
Rezultati so prikazani grafično in tablarično.

Tabela 9: Ocena finančne ustreznosti nepovratne subvencije Eko sklada v Sloveniji

| | f | f % |
|---|---|---|
| Ustrezne | 28 | 23,0 |
| Niti ustrezne niti neustrezne | 32 | 26,2 |
| Neustrezne | 32 | 26,2 |
| Ne poznam Eko subvencij | 29 | 23,8 |
| Me ne zanima | 1 | 0,8 |
| Skupaj | 122 | 100,0 |

Pri oceni finančne ustreznosti nepovratnih subvencij Eko sklada v Sloveniji so se mnenja delila na četrtine (Tabela in Graf). 26,2 % anketirancev jih je označilo za neustrezne, 26,2 % za niti neustrezne niti ustrezne. Kot ustrezne jih je označilo 23,0 %, medtem ko 23,8 % anketirancev ne pozna Eko subvencij. Enega anketiranca oz. 0,8 % subvencije niso zanimale.

Graf 13: Ocena finančne ustreznosti nepovratne subvencije Eko sklada v Sloveniji




Pri odgovoru na raziskovalno vprašanje, kjer anketiranci ocenjujejo finančno ustreznost nepovratnih sredstev Eko subvencij, ni prevladujočega odgovora, saj se mnenja okvirno delijo na četrtine. 26,2 % anketirancev jih je označilo za neustrezne, 26,2 % za niti neustrezne niti ustrezne. Kot ustrezne jih je označilo 23,0 %, medtem ko 23,8 % anketirancev ne pozna Eko subvencij. Zanimanje o ustreznosti pa vendarle obstaja, saj samo enega anketiranca oz. 0,8 % subvencije niso zanimale.

Ekart (2018) navaja izjavo ga. Jerkič: »Naše stranke večinoma vedo za subvencije, ki jih razpisuje Eko sklad, vendar pa redko kdo ve o njih kaj več. Zato je treba uporabnike dobro

informirati, saj večinoma ne vedo, kako začeti s pridobitvijo. Posledica tega je ogromno primerov, ko se ljudje sami podajo v postopek za pridobitev subvencije in nato jih pogosto, zaradi storjene napake v postopku, ne uspejo pridobiti. Nepravilno vodenje postopka namreč vodi v zavrnitev izplačila subvencije.« Vendraminova (2019, str. 30–31) ugotavlja:
»Najpogostejši razlogi za zavrnitev vlog nedovoljeni oziroma nelegalni gradbeni posegi na stanovanjskih stavbah, kjer se naložba, ki je predmet spodbude, izvaja in za katera vlagatelj ni predložil gradbenega dovoljenja, če je bila naložba izvedena pred oddajo vloge na Eko sklad, če vgrajena oprema (npr. toplotna črpalka, kurilna naprava) ali vgrajena debelina toplotne izolacije ne izpolnjuje pogojev javnega poziva in drugo.« Izjave pojasnjujejo pridobljene rezultate, in sicer lahko sklepamo, da so posledica površnega poznavanja subvencij Eko sklada, zato nimamo prevladujočega odstopanja v odgovorih. Sklepamo, da so odgovori bolj posledica ugibanja anketirancev.

Najpomembnejši kazalniki pri nekaterih posameznih metodah trajnostnega vrednotenja stavb so bili po navajanju Šijanec Zavrl idr. (2017) identificirani kot »energija, voda, materiali, lokacija, ekonomija, ugodje, procesi in ravnanje z odpadki«. Tomažič (2020) ugotavlja, da se v Sloveniji večinoma odločajo za gradnjo nizkoenergetske stavbe. Zasebni kot tudi javni investitorji pogoje za kakovost zasnove gradbenega dela stavbe vežejo na razrede nove energetske izkaznice. Prav tako se pri večini javnih investicij upošteva 10 % boljše toplotne lastnosti od minimalnih in večja debelina toplotne izolacije. Zaznava, da sta prisotni dve struji strokovnjakov. Imamo torej strujo, ki želi tehnološko napredne rešitve, kot so debelina izolacije, energijsko učinkovita okna in mehansko prezračevanje z vračanjem toplote zavrženega zraka in določitev notranje bivalnih pogojev glede na funkcionalnost prostora in potrebe uporabnika. Druga struja pa poudarja naravne rešitve, uporabo naravnih materialov ter ni naklonjena avtomatiki in ne zagovarja mehansko prezračevanje.

## 5.3 Ključni dejavniki pri oblikovanju zakonodaje s področja trajnostne rabe urbanega prostora in trajnostne gradnje stavb

***Hipoteza 2*:** V Sloveniji so subvencije Eko sklada kot tudi ugodnejši krediti za okolju prijazne investicije nezanimive, predvsem zaradi administrativno zahtevnih in dolgotrajnih postopkov. Uvedba certifikatov trajnostne gradnje, dostopnost nepovratnih sredstev in ugodnejši krediti so ključni dejavniki pri oblikovanju zakonodaje s področja trajnostne rabe urbanega prostora in trajnostne gradnje objektov.

V četrtem sklopu smo raziskovali, kateri ukrepi so anketirancem bolj pomembni pri odločitvi za investicijo v okolju prijazno gradnjo/nakup stavbe in kako bi ti lahko vplivali na politiko izboljšav pri oblikovanju zakonodaje s področja trajnostne rabe prostora in trajnostne gradnje objektov.

Zastavili smo si raziskovalno vprašanje:
*Kateri ukrepi so anketirancem bolj pomembni pri odločitvi za investicijo v okolju prijazno gradnjo/nakup stavbe?*

Rezultti raziskave so prikazani tabelarično in grafično.

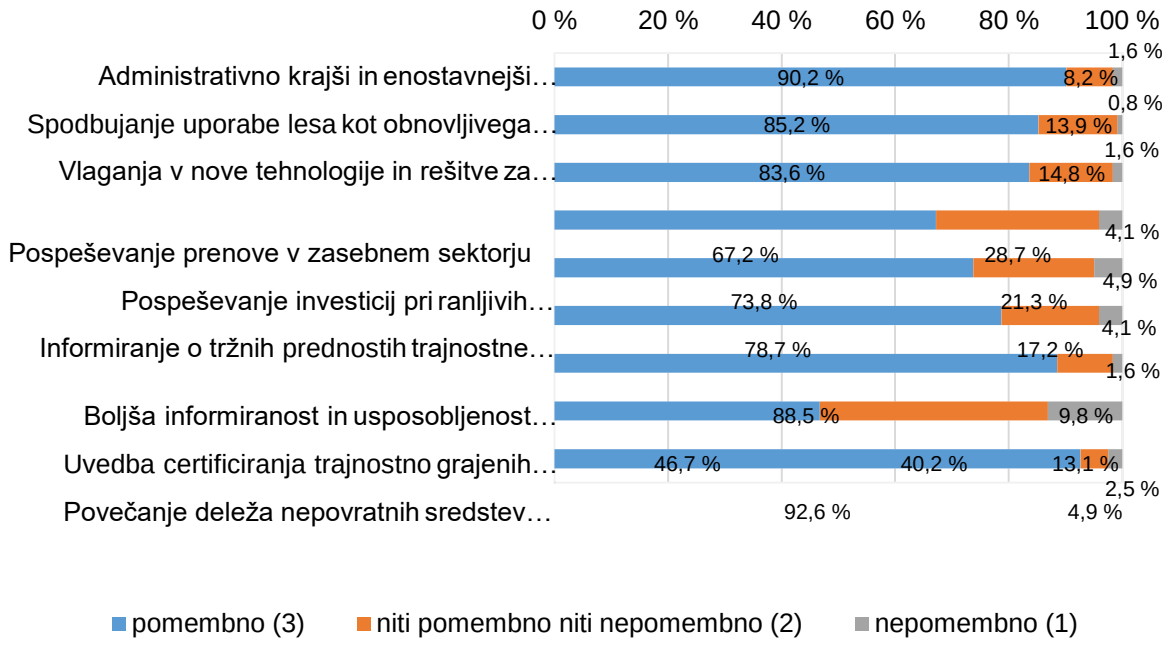
Tabela 10: Pomembnost posameznih ukrepov pri odločitvi za okolju prijazne investicije (povprečne vrednosti)

| | **3 – pomembno** | | **2 – niti pomembno niti nepomembno** | | **1 – nepomembno** | | **Skupaj** | | |
|---|---|---|---|---|---|---|---|---|---|
| | f | f % | f | f % | f | f % | f | f % | Povp. vred. |
| Povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti | 116 | 92,6 | 6 | 4,9 | 3 | 2,5 | 122 | 100,0 | 2,90 |
| Administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij | 110 | 90,2 | 10 | 8,2 | 2 | 1,6 | 122 | 100,0 | 2,89 |
| Boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci) | 108 | 88,5 | 12 | 9,8 | 2 | 1,6 | 122 | 100,0 | 2,87 |
| Spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu, saj nudi številne koristi (okolje, zdravje, gospodarstvo itd.) | 104 | 85,2 | 17 | 13,9 | 1 | 0,8 | 122 | 100,0 | 2,84 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov | 102 | 83,6 | 18 | 14,8 | 2 | 1,6 | 122 | 100,0 | 2,82 |
| Informiranje o tržnih prednostih trajnostne gradnje | 96 | 78,7 | 21 | 17,2 | 5 | 4,1 | 122 | 100,0 | 2,75 |
| Pospeševanje investicij pri ranljivih skupinah prebivalstva | 90 | 73,8 | 26 | 21,3 | 6 | 4,9 | 122 | 100,0 | 2,69 |
| Pospeševanje prenove v zasebnem sektorju | 82 | 67,2 | 35 | 28,7 | 5 | 4,1 | 122 | 100,0 | 2,63 |
| Uvedba certificiranja trajnostno grajenih stavb | 57 | 46,7 | 49 | 40,2 | 16 | 13,1 | 122 | 100,0 | 2,34 |

Pri raziskovanju, koliko je posamičen ukrep pomemben, neodvisno od ostalih, smo ugotovili, da so večinoma vsi ukrepi, razen enega izstopajočega, bolj pomembni, saj so razlike v povprečnih vrednostih zanemarljivo majhne. Prvi bolj pomemben ukrep je »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« z vrednostjo 2,90, sledi »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« z vrednostjo 2,89. Med ostale bolj pomembne ukrepe sodijo »boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci)« z vrednostjo 2,87, sledi »spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu, saj nudi številne koristi (okolje, zdravje, gospodarstvo itd.)« z vrednostjo 2,84. Z majhnim odstopanjem od vrednosti sledijo še naslednji štirje ukrepi po vrstnem redu pomembnosti: »vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov« z vrednostjo 2,82, »informiranje o tržnih prednostih trajnostne gradnje« z vrednostjo 2,75, »pospeševanje investicij pri ranljivih skupinah prebivalstva« z vrednostjo 2,69, in »pospeševanje prenove v zasebnem sektorju« z vrednostjo 2,63. Najmanj pomemben (z največjim odstopanjem od povprečne vrednosti) je ukrep »uvedba certificiranja trajnostno grajenih stavb« z vrednostjo 2,34, kar kaže, da anketirancem ta ukrep ni niti pomemben niti nepomemben.

Grafi 14: Pomembnost posameznih ukrepov pri odločitvi za okolju prijazne investicije (Likertova lestvica)




Graf 15: Pomembnost posameznih ukrepov pri odločitvi za okolju prijazne investicije (povprečne vrednosti)

Tabela 10: Pomembnost posameznih ukrepov pri odločitvi za okolju prijazne investicije v soodvisnosti z ostalimi ukrepi (povprečne vrednosti)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Skupaj | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | f / f % | f / f % | f / f % | f / f % | f / f % | f / f % | f / f % | f / f % | f / f % | f / f % | Povp. vred. |
| Povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti | 53 / 43,4 | 23 / 18,9 | 14 / 11,5 | 8 / 6,6 | 9 / 7,4 | 4 / 3,3 | 3 / 2,5 | 2 / 1,6 | 6 / 4,9 | 122 / 100,0 | 2,73 |
| Boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci) | 11 / 9,0 | 31 / 25,4 | 19 / 15,6 | 16 / 13,1 | 11 / 9,0 | 11 / 9,0 | 10 / 8,2 | 6 / 4,9 | 7 / 5,7 | 122 / 100,0 | 4,07 |
| Administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij | 14 / 11,5 | 21 / 17,2 | 22 / 18,0 | 10 / 8,2 | 10 / 8,2 | 8 / 6,6 | 6 / 4,9 | 17 / 13,9 | 14 / 11,5 | 122 / 100,0 | 4,62 |
| Informiranje o tržnih prednostih trajnostne gradnje | 13 / 10,7 | 11 / 9,0 | 11 / 9,0 | 25 / 20,5 | 14 / 11,5 | 17 / 13,9 | 8 / 6,6 | 16 / 13,1 | 7 / 5,7 | 122 / 100,0 | 4,81 |
| Vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov | 8 / 6,6 | 5 / 4,1 | 16 / 13,1 | 15 / 12,3 | 32 / 26,2 | 16 / 13,1 | 12 / 9,8 | 11 / 9,0 | 7 / 5,7 | 122 / 100,0 | 5,06 |
| Spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu, saj nudi številne koristi | 7 / 5,7 | 9 / 7,4 | 12 / 9,8 | 16 / 13,1 | 13 / 10,7 | 26 / 21,3 | 16 / 13,1 | 17 / 13,9 | 6 / 4,9 | 122 / 100,0 | 5,31 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (okolje, zdravje, gospodarstvo itd.) | | | | | | | | | | | |
| Pospeševanje investicij pri ranljivih skupinah prebivalstva | 7 / 5,7 | 9 / 7,4 | 13 / 10,7 | 7 / 5,7 | 15 / 12,3 | 10 / 8,2 | 35 / 28,7 | 9 / 7,4 | 17 / 13,9 | 122 / 100,0 | 5,71 |
| Pospeševanje prenove v zasebnem sektorju | 4 / 3,3 | 5 / 4,1 | 11 / 9,0 | 15 / 12,3 | 9 / 7,4 | 20 / 16,4 | 19 / 15,6 | 24 / 19,7 | 15 / 12,3 | 122 / 100,0 | 6,00 |
| Uvedba certificiranja trajnostno grajenih stavb | 4 / 3,3 | 6 / 4,9 | 4 / 3,3 | 11 / 9,0 | 9 / 7,4 | 10 / 8,2 | 13 / 10,7 | 20 / 16,4 | 45 / 36,9 | 122 / 100,0 | 6,83 |

Pri razvrščanju danih ukrepov v odvisnosti med njimi pa lahko iz rezultatov interpretiramo, da je anketirancem daleč najbolj pomemben ukrep »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« z vrednostjo 2,73. Sledi ukrep »boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci)« z vrednostjo 4,07. Tretji pomembni ukrep je »informiranje o tržnih prednostih trajnostne gradnje« z vrednostjo 4,81, četrti pomembni ukrep je »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« z vrednostjo 4,62. Srednjo vrednost je zaobjel ukrep »vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov« z vrednostjo 5,06. Sledi ukrep »spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu«, saj nudi številne koristi (okolje, zdravje, gospodarstvo itd.)« z vrednostjo 5,31. Med zadnjimi tremi pa so razvrščeni: »pospeševanje investicij pri ranljivih skupinah prebivalstva« z vrednostjo 5,71, »pospeševanje prenove v zasebnem sektorju« z vrednostjo 6,00 in kot najmanj pomemben »uvedba certificiranja trajnostno grajenih stavb« z vrednostjo 6,83.

Graf 16: Pomembnost posameznih ukrepov pri odločitvi za okolju prijazne investicije v soodvisnosti z ostalimi ukrepi (povprečne vrednosti)

Pri raziskovanju, koliko je posamičen ukrep pomemben, neodvisno od ostalih, smo ugotovili, da so večinoma vsi ukrepi, razen enega izstopajočega, bolj pomembni, saj so razlike v povprečnih vrednostih zanemarljivo majhne. Prvi bolj pomemben ukrep je »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti«, ki ima vrednost 2,90, sledi ukrep »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« z vrednostjo 2,89. Prva dva bolj pomembna ukrepa nas ne presenečata. Povezujemo jih tudi z izjavami, podanimi pri odgovoru na sedmo raziskovalno vprašanje, saj očitno težavo predstavljajo postopki pridobivanja nepovratnih sredstev.

Eden izmed načinov spodbujanja investicij je sprejeti Zakon o spodbujanju investicij (ZSInv), ki se uporablja od 1. 7. 2018. Za spodbujanje investicij uvaja možnost nakupa nepremičnin v lasti samoupravnih lokalnih skupnosti pod ocenjeno vrednostjo na podlagi neposredne pogodbe. Ta novost v primerjavi z veljavno zakonodajo omogoča poenostavitev postopka in skrajša čas, ki je potreben za izvedbo postopkov. Investicijska spodbuda je lahko dana tudi v obliki subvencije, kredita, garancije in subvencionirane obrestne mere. Nov zakon določa tudi aktivnosti za spodbujanje investicij in internacionalizacije. Cilj je spodbujati konkurenčnost slovenskih podjetij preko uspešnega poslovanja na globalnih trgih. Aktivnosti za spodbujanje investicij in internacionalizacije v skladu z usmeritvami in politiko Republike Slovenije izvaja Javna agencija (Mahor, 2018).

Pri razvrščanju danih ukrepov v odvisnosti med njimi pa lahko iz rezultatov sklenemo, da je anketirancem daleč najbolj pomemben isti ukrep, torej »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti«, ki ima vrednost 2,73. Sledi ukrep »boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci)« z vrednostjo 4,07.

Podobno ugotavlja tudi Šijanc Zavrl (2014), saj pravi: »Trajnostna gradnja potrebuje primerno podporno okolje. Pomembno fazo v razvoju metode predstavlja anketiranje stroke, gradbene industrije, javnega sektorja in zakonodajalcev v evropskih državah glede primernosti, sprejemljivosti in pomembnosti posameznega kazalnika v nacionalni gradbeni praksi. Z vidika uporabnosti metode je pomembno, ali lahko investitor in projektant zagotovita potrebne podatke za določitev vrednosti kazalnikov, ali je v posameznih državah na voljo metoda za določanje vrednosti kazalnika, ali je mogoče določiti vrednostne razrede kazalnika in nenazadnje, kakšna je splošna ocena partnerjev o sprejemljivosti posameznega kazalnika. Za skupno oceno uporabljamo dogovorjen nabor kazalnikov, ki se (na podlagi analiz in vrednostne lestvice) točkujejo. Vrednostna lestvica mora biti prilagojena državi ali regiji, vrednosti posameznih kazalnikov pa se uravnotežijo z utežmi. Tako dobimo oceno okoljskega, ekonomskega in družbenega vidika trajnostne stavbe, pa tudi oceno dopolnilnih področij. Nadaljnji razvoj gre v smeri vzpostavljanja potrebnih pogojev v državah za uveljavitev trajnostne gradnje: podatkovnih baz okoljskih prodiktnih deklaracij, ki podajajo okoljski odtis izdelka, večje zavezanosti gradbene industrije trajnostni gradnji, sprejema zakonodaje o zelenem javnem naročanju na področju stavb.«

Skladno z odgovori na peto anketno vprašanje, kjer izhaja, da so anketiranci slabše seznanjeni s sistemi meril trajnostnega vrednotenja (tj. certifikati), to ugotovitev potrjuje tudi dejstvo, da skoraj polovica anketirancev (43,4 %) ni nikoli slišala za navedene certifikate. Prav tako je tudi uvrstitev ukrepa »uvedba certificiranja trajnostno grajenih stavb« na zadnje mesto, torej kot najmanj pomemben ukrep, posledično razumljiva.

Pri raziskovanju, koliko je posamičen ukrep pomemben, neodvisno od ostalih, smo ugotovili, da so večinoma pomembni vsi ukrepi. Prvi bolj pomemben ukrep je »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti«, ki mu sledi ukrep »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij«.

Pri razvrščanju danih ukrepov v odvisnosti med njimi pa lahko iz rezultatov interpretiramo, da je anketirancem daleč najbolj pomemben ukrep »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti«. Kot četrti pomemben ukrep se je izkazal »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij«.

Za nadaljno raziskovanje smo si zastavili raziskovalno vprašanje:
*Kateri so najbolj pomembni ukrepi ali politike izboljšav pri oblikovanju zakonodaje s področja trajnostne rabe prostora in trajnostne gradnje objektov?*

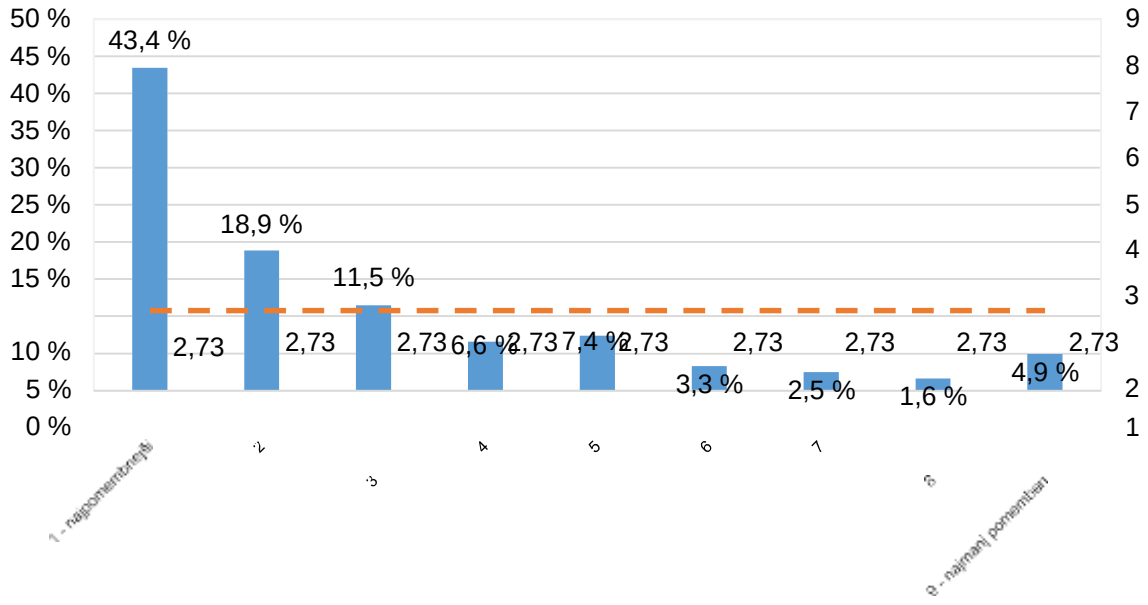
Pri razvrščanju danih ukrepov v odvisnosti med njimi pa lahko iz rezultatov sklepamo, da je anketirancem daleč najbolj pomemben ukrep »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« z vrednostjo 2,73. Sledi ukrep »boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci)« z vrednostjo 4,07. Tretji pomemben ukrep je »informiranje o tržnih prednostih trajnostne gradnje« z vrednostjo 4,81, četrti pomemben je »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« z vrednostjo 4,62. Srednjo vrednost je zaobjel ukrep »vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov«, katerega vrednost znaša 5,06. Sledi ukrep »spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu«, saj nudi številne koristi (okolje, zdravje, gospodarstvo itd.)« z vrednostjo 5,31. Med zadnjimi tremi pa so razvrščeni: »pospeševanje investicij pri ranljivih skupinah prebivalstva« z vrednostjo 5,71, »pospeševanje prenove v zasebnem sektorju« z vrednostjo 6,00 in kot najmanj pomemben »uvedba certificiranja trajnostno grajenih stavb v zasebnem sektorju«, ki ima vrednost 6,83.

Za razpravo smo se podrobneje osredotočili na tri ključne ukrepe, ki jih izpostavlja hipoteza in jih razvrščamo po pomembnosti:

- povišanja deleža nepovratnih sredstev Eko sklada in ugodnejši krediti,
- uvedba certificiranja trajnostno grajenih stavb,
- administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij.

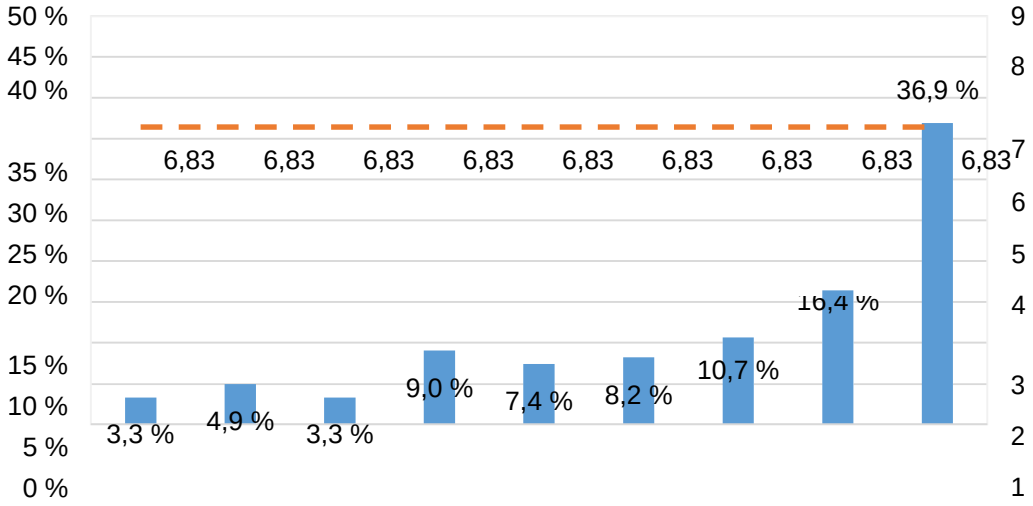
Rezultati so prikazani tabelarično in grafično.

Graf 17: Razvrščena pomembnost ukrepa: povišanja deleža nepovratnih sredstev Eko sklada in ugodnejši krediti




Ukrep »povišanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« je anketirancem najpomembnejši v soodvisni primerjavi z ostalimi ukrepi iz nabora (Graf ), saj njegova povprečna vrednost ocene pomembnosti znaša 2,73. Iz Graf je razvidno, da je skoraj polovica, natančneje 43,4 %, anketirancev označila omenjeni ukrep kot najpomembnejši, torej s številko 1. Nekaj manj kot petina anketirancev, natančneje 18,9 %, je dani ukrep postavila na drugo mesto, torej kot drugega najpomembnejšega. Rezultati nakazujejo tudi na nekolikšna odstopanja pri ocenjevanju pomembnosti tega ukrepa, saj je 4,9 % anketirancev postavilo dani ukrep na zadnje, tj. najmanj pomembno mesto.

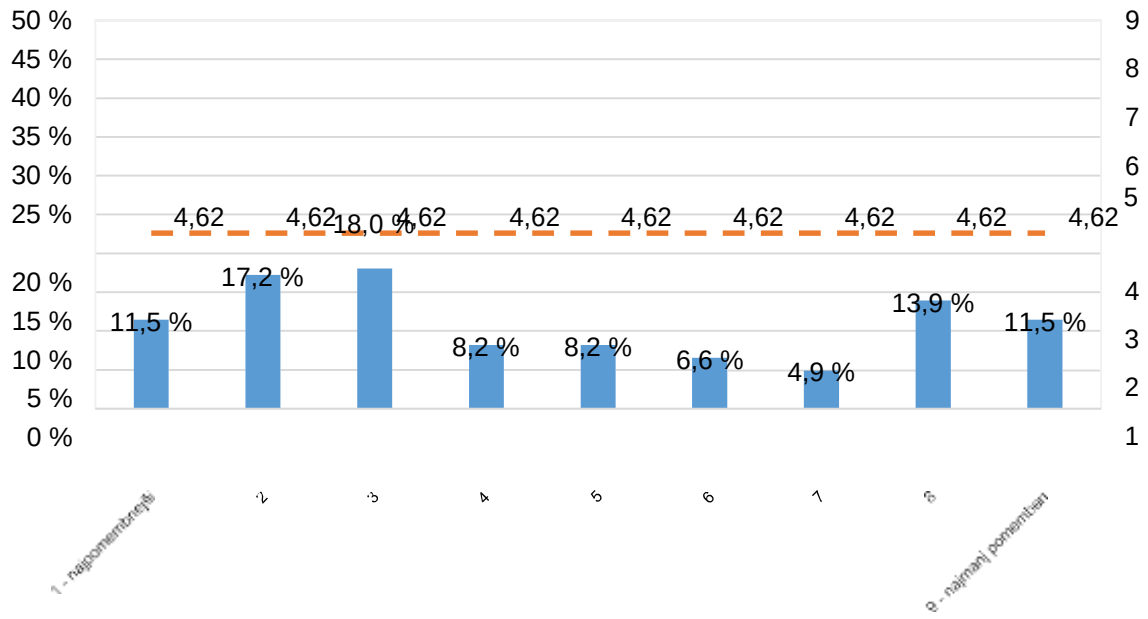
Graf 18: Razvrščena pomembnost ukrepa: uvedba certificiranja trajnostno grajenih stavb



1 - najponemburnijih 2 3 4 5 6 7 8 9 - najmanj ponemburnih

»Uvedba certificiranja trajnostno grajenih stavb« s povprečno vrednostjo ocene pomembnosti 6,83 predstavlja ukrep, ki je anketirancem z naskokom najmanj pomemben. Graf nazorno kaže, da se je kar 36,9 % anketirancev opredelilo omenjeni ukrep za najmanj pomembnega in mu dodelilo najnižjo oceno 9. 16,4 % anketirancev je temu ukrepu dodelilo oceno 8, 10,7 % pa oceno 7. 3,3 % anketirancev ocenjuje ta ukrep kot najpomembnejši.

Graf 19: Razvrščena pomembnost ukrepa: administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij




Razvidno je, da je ukrep »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« s povprečno vrednostjo ocene pomembnosti 4,62 tretji po pomembnosti po razvrstitvi anketirancev na lestvici od 1 do 9. Identični odstotek anketirancev (11,5 %) je ukrep označil kot najpomembnejši in kot najmanj pomemben. Največ anketirancev (18,0 %)je ukrep postavilo na tretje mesto po pomembnosti. Iz navedenega izhaja, da se skoraj polovici anketirancev (46,7 %) omenjeni ukrep zdi zelo pomemben, slabi tretjini anketirancev (30,3 %) pa ta ukrep ni pomemben. Če povzamemo, je ukrep »povišanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« anketirancem najpomembnejši v soodvisni primerjavi z ostalimi ukrepi iz nabora. Ukrep »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« je tretji po pomembnosti. Le »uvedba certificiranja trajnostno grajenih stavb« predstavlja ukrep, ki je anketirancem najmanj pomemben. S tem lahko peto hipotezo delno potrdimo. Po mnenju anketirancev je uvrstitev ukrepa »uvedba certificiranja trajnostno grajenih stavb« na zadnje mesto, torej kot najmanj pomemben ukrep, posledično razumljiva, saj si jo razlagamo z ostalimi pridobljenimi rezultati na hipotezo 1, torej je slabša uvrstitev

zaradi neprepoznavnosti.

Kot izhaja iz interpretacije odgovorov na raziskovalno vprašanje, lahko hipotezo delno potrdimo. Pomembnost kriterijev trajnostne gradnje oziroma odločitev za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni se opazneje izraža pri ženskah z univerzitetno izobrazbo ali drugo bolonjsko stopnjo, v starostni skupini nad 35 let oziroma od 36 do 49 let, torej nekoliko zrelejših let. Zaposlitev v sektorju gradnje oziroma stroke kot npr. proizvajalec ali dobavitelj gradbenih materialov, izdelkov in strojne opreme, ali projektant, ali arhitekt, ali urbanist, ali raziskovalec, ali investitor (kot lastnik in uporabnik), ali investitor (kot lastnik, ki razvija stavbe za najem in upravljanje), ali izvajalec gradenj, ali izvajalec gradbenega nadzora, ali nepremičninski posrednik, ali zaposleni v finančnem sektorju (banka, zavarovalnica, javna agencija, ki nudi subvencije in kredite), ali oblikovalec politik oziroma zakonodaje, ki jih za interpretacijo poimenujemo kot sektor trajnostne gradnje, pa nima vpliva. Izkazalo se je, da je od 53,3 % anketirancev, ki so bili naklonjeni trajnosti gradnji oz. bi se odločili za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni, 29,5 % zaposlenih v sektorju drugo, torej več kot je delež 23,8 % zaposlenih v t. im. sektorju trajnostne gradnje.

Omerzu (2019) v svojem magistrskem delu med drugim ugotavlja podobno: »Za anketirance je najpomembnejši nepremičninski dejavnik primernost cene glede na kakovost nepremičnine. Pri tem dejavniku lahko prepoznamo prevlado subjektivističnega pogleda na vrednost. Govorimo torej o vrednosti določene stvari iz zornega kota udeleženca, povezani z različnostjo posameznikovih potreb, želja in pričakovanj. Temu sledijo dejavniki: varnost soseske, stroški vzdrževanja, možnost ugodnega financiranja, občutek samostojnosti in samozadovoljstva ter sončna lega stanovanja. Od naštetih dejavnikov kar trije/večina spada v skupino socioekonomskih dejavnikov. Dejavniki bivalnega okolja so dosegli sredinske vrednosti, kar bi si lahko razlagali, da so sicer pomembni pri odločanju za nakup, vendar ne prevladujejo.« V nadaljevanju še ugotavlja, da so ženskam finančni in socioekonomski dejavniki v povprečju pomembnejši kot moškim, pomembnejši pa so anketirancem med 20. in 40. letom starosti.

Predpostavljam, da je sektor t. im. trajnostne gradnje manj naklonjen, saj v Sloveniji skoraj ni primerov dobre prakse. Podobno ugotavljata Šijanec Zavrl in Jordan (2018), da pristop k implementaciji nacionalnega sistema vrednotenja trajnostne gradnje zahteva zlasti pripravo podpornega okolja – informiranje deležnikov in posvetovanje z njimi, boljšo usposobljenost dežnikov, testiranje kazalnikov, oblikovanje/dopolnitev vrste zbirk podatkov za določitev

kazalnikov in/ali njihovo vrednotenje, uporabo programskih orodij in izdelavo nekaterih specifičnih orodij.

# 6 Sklep

Namen raziskave je bil ugotoviti prepoznavnost razširjenosti trajnostnega razvoja urbanega prostora, prepoznavnost trajnostne gradnje, prepoznavnost sistemov meril trajnostnega vrednotenja oz. certificiranja zgradb med uporabniki v Republiki Sloveniji. Z raziskavo smo želeli ugotoviti, kakšna so pričakovanja naročnikov in investitorjev na eni strani, na drugi strani pa želje in pričakovanja uporabnikov grajenega okolja. Poleg tega smo želeli tudi razbrati pomembnost posameznih kriterijev trajnostne gradnje ter definirati in analizirati razloge, ali se kriteriji trajnostne gradnje v RS uresničujejo in kako vplivajo na izraženo zadovoljstvo uporabnikiv grajenega okolja.

V teoretičnem delu smo pojasnili, kaj v raziskavi razumemo pod pojmi kot so trajnostni razvoj urbanega prostora, trajnostna gradnja in sistemi meril trajnostnega vrednotenja oz. certificiranja zgradb ter zakonodajo Republike Slovenije na obravnavano tematiko. Z lastno raziskavo na reprezentativnem vzorcu 122 anketirancev smo na podlagi kvantitativne metode in statistične obdelave odgovorov udeležencev interpretirali rezultate. Raziskovalno delo in raziskovalna vprašanja so bila podkrepljena z dvema hipotezama. Preverjali smo prepoznavnost trajnostnega razvoja urbanega prostora, trajnostne gradnje in trajnostnega vrednotenja stavb ter razširjenost prakse uporabe le-teh v Sloveniji. Iz pridobljenih rezultatov lahko sklepamo, da je prepoznavnost zanemarljiva, s tem pa smo hipotezo potrdili. Anketirancem je bil najbolj poznan pojem »trajnostna gradnja«, saj je več kot dve tretjini anketirancev (72,1 %) označilo, da pozna pomen. Kot drugi najbolj poznan pojem, tj. trajnostni razvoj urbanega prostora, je kar 63,9 % anketirancev označilo, da ga zelo dobro pozna ali pozna površinsko. Tretji najbolj poznan pojem so bili »sistemi meril trajnostnega vrednotenja (tj. certifikati)«, čeprav skoraj polovica anketirancev (43,4 %) nikoli ni slišala zanje. Dobra četrtina oziroma 27,9 % je le slišala zanje, medtem ko 18 % anketirancev pozna certifikate le površinsko. Več kot dve tretjini anketirancev (63,9 %) ni nikoli slišalo oz. ne pozna procesa za pridobitev certifikata. Sodeč po rezultatih lahko potrdimo dejstvo, ki nakazuje, da so anketiranci slabše seznanjeni z obravnavano tematiko, saj je kar 84,4 % anketirancev odkrito odgovorilo, da ne ve, kateri komercialni sistem meril vrednotenja stavb je prevzelo združenje GBC Slovenija.

Anketiranci tudi v veliki meri nepravilno ocenjujejo razširjenost stavb s certifikati trajnostne gradnje oziroma nimajo znanja o obravnavani tematiki, saj največ anketirancev, in sicer 41,8 %, ne zna podati ocene, koliko stavb v Sloveniji poseduje certifikat trajnostne gradnje stavb. Prav tako so anketiranci na anketno vprašanje, ali bi se odločili za pridobitev certifikata trajnostne gradnje kot razlog, »zakaj ne«, navedli: »ne poznam prednosti pridobitve certifikata«, »imam premalo info«, »v primeru bivanjske enote v tem ne vidim prednosti, morda v primeru poslovne enote«, kar prav tako izkazuje na zanemarljivo prepoznavnost prednosti certificiranja zgradbe.

Trditev v hipotezi, ki navaja, da začetni ocenjeni stroški investicije primarno vplivajo na odločitev o naložbi, zato vidiki trajnostne gradnje v večini niso upoštevani, smo zavrnili iz več ključnih empiričnih ugotovitev. Kot izhaja iz analize, bi se dobra polovica (53,3 %) anketirancev odločila za gradnjo ali nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni. Enak delež (53,3 %) anketirancev bi se odločil za gradnjo certificirane trajnostno grajene stavbe za namene oddaje v najem ob pričakovanju boljše zasedenosti in možnosti višje najemnine. Poleg odločitve za nakup ali trajnostno gradnjo je skoraj polovica teh anketirancev želela še prejeti certifikat ter s tem izkazovati trajno gradnjo oziroma nakup ter v kolikšni meri je trajno grajeno. Na podlagi povprečnih vrednosti lahko trdimo, da je anketirancem bolj pomembno kakovostno bivanje, torej dobro počutje v stavbi (npr. naravna svetloba, zvočna izolacija, kakovosten zrak itd.), funkcionalnost prostora ter okolju in zdravju ljudi prijazni materiali, ki ne vsebujejo škodljivih kemikalij kot začetni stroški oziroma ocena investicije.

Pomembnost kriterijev trajnostne gradnje oziroma odločitev za gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni se opazneje izraža pri ženskah z univerzitetno izobrazbo ali drugo bolonjsko stopnjo, ki spadajo v starostni skupini nad 35 let oziroma od 36 do 49 let, torej nekoliko zrelejših let. Zaposlitev v sektorju gradnje oziroma stroke kot npr. proizvajalec ali dobavitelj gradbenih materialov, izdelkov in strojne opreme, ali projektant, ali arhitekt, ali urbanist, ali raziskovalec, ali investitor (kot lastnik in uporabnik), ali investitor (kot lastnik, ki razvija stavbe za najem in upravljanje), ali izvajalec gradenj, ali izvajalec gradbenega nadzora, ali nepremičninski posrednik, ali zaposlen v finančnem sektorju (banka, zavarovalnica, javna agencija, ki nudi subvencije in kredite), ali oblikovalec politik oziroma zakonodaje pa nima vpliva. Izkazalo se je, da je od 53,3 % anketirancev, ki so bili naklonjeni trajnosti gradnji oz. bi se odločili za

gradnjo oziroma nakup certificirane trajnostno grajene stavbe za namene bivanja ali lastne uporabe za poslovne namene kljub višji ceni, 29,5 % zaposlenih v sektorju drugo, torej več kot je delež zaposlenih v t. i. sektorju trajnostne gradnje.

Pri raziskovanju, koliko je posamičen ukrep pomemben pri odločitvi za okolju prijazne naložbe, neodvisno od ostalih, smo ugotovili, da so v večini vsi ukrepi, razen enega izstopajočega, bolj pomembni, saj so razlike v povprečnih vrednostih zanemarljivo majhne. Prvi bolj pomemben ukrep je »povečanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« z vrednostjo 2,90, sledi »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« z vrednostjo 2,89. Med ostale bolj pomembne ukrepe sodijo »boljša informiranost in usposobljenost odgovornih oseb (projektanti, izvajalci, nadzorniki, upravljavci)« z vrednostjo 2,87, sledi »spodbujanje uporabe lesa kot obnovljivega vira v gradbeništvu, saj nudi številne koristi (okolje, zdravje, gospodarstvo itd.)« z vrednostjo 2,84. Z majhnim odstopanjem od vrednosti sledijo še naslednji štirje ukrepi po vrstnem redu pomembnosti: »vlaganja v nove tehnologije in rešitve za recikliranje odsluženih materialov iz obnovljivih virov« z vrednostjo 2,82, »informiranje o tržnih prednostih trajnostne gradnje« z vrednostjo 2,75, »pospeševanje investicij pri ranljivih skupinah prebivalstva z vrednostjo 2,69 in »pospeševanje prenove v zasebnem sektorju« z vrednostjo 2,63. Najmanj pomemben, z največjim odstopanjem od povprečne vrednosti, je ukrep »uvedba certificiranja trajnostno grajenih stavb« z vrednostjo 2,34, kar kaže, da anketirancem ta ukrep ni niti pomemben niti nepomemben.

Če povzamemo, je ukrep »povišanje deleža nepovratnih sredstev Eko sklada in ugodnejši krediti« anketirancem najpomembnejši v soodvisni primerjavi z ostalimi ukrepi iz nabora. Ukrep »administrativno krajši in enostavnejši postopki pridobivanja nepovratnih subvencij« je tretji po pomembnosti. Le »uvedba certificiranja trajnostno grajenih stavb« predstavlja ukrep, ki je anketirancem najmanj pomemben. S tem lahko peto hipotezo delno potrdimo. Uvedba certifikatov trajnostne gradnje po mnenju anketirancev ni ključen dejavnik, medtem ko je dostopnost nepovratnih sredstev in ugodnejši krediti ključen dejavnik pri oblikovanju zakonodaje s področja trajnostne rabe urbanega prostora in trajnostne gradnje objektov.

Z rezultati raziskave, kjer smo obravnavali prepoznavnost in zaželenost trajnostnega vrednotenja stavb oz. certifikate, nismo razočarani. Izkazalo se je, da niso prepoznani in jih anketiranci niti ne obravnavajo kot pomembne v primerjavi z drugimi podanimi kriteriji oziroma so bili uvrščeni na zadnje mesto na lestvici. V Sloveniji imamo zelo malo primerov

dobre prakse trajnostne gradnje, certificiranje pa skoraj še ni prisotno in posledično ni prepoznano. Tudi vpliv certifikata na vrednost nepremičnine ni prepoznan. Misel, ki odbija, je, da bi poleg ostalih investicijskih stroškov predstavljal dodaten strošek še certificiranje zgradbe in dvom v smiselnost vrednotenja stavbe. Razvoj kriterijev za trajnostno gradnjo in posledično vrednotenje trajnostne gradnje oziroma certifikati, s katerimi lahko dokazujemo okoljsko prijaznost, ekonomsko učinkovitost in družbeno sprejemljivost zasnovane stavbe, predstavljajo ključno težavo, ki jo je treba razrešiti s ciljem uresničevanja načel trajnostne gradnje. Poleg tega pa je nujno omogočiti finančne zmožnosti in sistemsko podprta ustrezna dokazila glede izvora in lastnosti vgrajenih materialov ter izvedbe.

Sklepno ugotavljamo, da so stanovanja premalo prepoznaven kazalnik ter da bi se moralo več pozornosti posveti pomembnosti stanovanjskih vidikov za trajnostni razvoj. Stanovanjske politike so v zadnjih 50 letih prešle skozi številne permutacije, ki temeljijo na različnih, celo nasprotujočih si pristopih, ki žal niso zares rešili stanovanjskih problemov s katerimi se sooča večina svetovnega prebivalstva (Choguill, 2007). Trenutne politike in programi, osredotočene na tehnične posege za izboljšanje energetske učinkovitosti, bodo imele omejen doseg in vpliv. Namesto tega se med drugimi posegi predlaga, da bi bilo treba politike za zmanjšanje vpliva stanovanj na okolje preoblikovati in postaviti tako, da bi obravnavale vsakodnevne prakse vsakdanjega življenja (Judson, Maller, 2014).

Posebno zanimanje za naše raziskave je stanovanjska kakovost življenja, ki je povezana z zadovoljstvom v stanovanju. Ko človek v svojem kraju in okolici doseže vse, kar želi, in to zadovoljuje njegove življenjske potrebe, izraža visoko stopnjo splošnega zadovoljstva (Mohit idr., 2010). Bivalno zadovoljstvo se odraža v kakovosti življenja uporabnika. Bivalno zadovoljstvo razumemo kot kompleksen izraz, saj je njegov natančen pomen odvisen od kraja, časa in namena. Ti profili soseske so na splošno izpeljani iz objektivnih meril in socialno-demografskih napovedovalcev disfunkcije in nezadovoljstva (Adriaanse, 2007). Zanuzdana idr. (2012) podajajo pregled literature s področja stanovanjskega in bivalnega zadovoljstva. Empirične študije, ki se ukvarjajo z zadovoljstvom večinoma uporabljajo ta pristop. Nekateri raziskovalci menijo, da je bivalno zadovoljstvo napovedovalec vedenja (Zanuzdana idr, 2012). Lahko napoveduje vedenje, kot je selitev ali izboljšava doma. Drugi pristop uporablja bivalno zadovoljstvo kot merilo kakovosti stanovanja (Grum, Kobal Grum, 2020). Raziskovalci si prizadevajo identificirati ključne dejavnike, ki določajo raven zadovoljstva uporabnikov v bivalnem okolju. Izpostavljajo številne dejavnike, kot so premoženjski status, fizične

značilnosti stanovanj in sosesk, družbene vezi in socialno-demografske značilnosti. Drugi pristopi združujejo oba pristopa. Uporabili so večdimenzionalno skaliranje in razvili splošni model stanovanjskega zadovoljstva, ki postavlja cilje uporabnikov v središče vrednotenja bivalnega okolja (Adriaanse, 2007). Tipičen pristop je sestava potencialno najbolj zaželenih lastnosti, nato pa te lastnosti stanovalci ovrednotijo glede na pomen. Številne empirične študije so preučevale značilnosti uporabnikov (kognitivnih ali vedenjskih) ali okolja, tako fizičnega kot socialnega. Le malo jih je te spremenljivke organiziralo v model, da bi olajšalo analizo razmerij med temi značilnostmi (Grum, Kobal Grum, 2015). Osnovna predpostavka življenjskega cikla potrošnika/proizvoda v zvezi s stanovanji je, da je kakovost stanovanja mogoče izboljšati, če je stanovanje označeno na način, ki zagotavlja zadovoljstvo v vseh šestih fazah življenjskega cikla potrošnika/izdelka (nabava, priprava, posest, poraba, vzdrževanje in odlaganje) (Grum, Kobal Grum, 2020). Naša ambicija je upoštevati tudi psihološki in socialni del tega, ki vključuje tako razmišljanje in občutke o kakovosti življenja kot tudi povezanost zgrajenega okolja z vedenjem zadovoljstva z življenjem. V našem modelu želimo te dele razdeliti na: sociodemografske značilnosti uporabnikov stavbnega okolja, njihovo kakovost urbanega življenja in njihovo subjektivno kakovost življenja. Številni avtorji, kot so Baumeister in Leary (1995), Engle in Altschuld (2014), so opozorili, da je treba kakovost življenja meriti z razmišljanjem o potrebah; predvsem je treba upoštevati potrebe; pod kakršnimi koli pogoji morajo potrebe delovati na razmišljanje, občutke in vedenje; če potrebe niso zadovoljene, je treba upoštevati negativne posledice. Kadar potrebe niso zadovoljene, bi se moral njegov objektivni pomen povečati ali zmanjšati.

In kot je na 26. konferenci Združenih narodov o podnebnih spremembah (COP26), ki se je začela z vrhom svetovnih voditeljev in voditeljic 1. novembra 2021, navedel predsednik Evropskega sveta Charles Michel: „Človeštvo bojuje vojno z naravo: končati jo moramo. Planet Zemlja je naš edini dom. Ukrepati moramo zdaj in skupaj.“ Raziskovalci moramo to razumeti kot spodbudo za naše nadlajno delo.

**ZAHVALA**

Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: *Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva*; št. projekta J5-3112.

# 7 Literatura in viri


Adams, W. M. (2006). The future of sustainability: Re-thinking environment anddevelopment in the twenty-first century. Zurich: The World Conservation Union. URL: https://portals.iucn.org/library/sites/library/files/documents/Rep-2006-002.pdf, 2. 11. 2021.

Adriaanse, C.C.M. (2007). Measuring residential satisfaction: a residential environmental satisfaction scale (RESS). *Journal Housing Built Environment*, 22, 287-304.

Agenda 21, Agenda 2030 za trajnostni razvoj (2016). https://www.gov.si/assets/ministrstva/MZZ/Dokumenti/multilaterala/razvojno-sodelovanje/publikacije/Cilji-trajnostnega-razvoja-SLOGA.pdf , 2.11.2021

Ambrožič, B. (2019). Globalno segrevanje: mit ali resničnost? Bojan Ambrožič Blog. URL: https://bojanambrozic.com/2019/05/30/globalno-segrevanje-mit-ali-resnicnost/, 15. 5. 2020.

Anand, S., Sen, A. (2000). Human development and economic sustainability. World Development, 28 (12), str. 2029-2049.

Asomani-Boateng, R., Fricano, R.J. and Adarkwa, F. (2015). Assessing the socio-economic impacts of rural road improvements in Ghana: A case study of Transport Sector Program Support (II), Elsevier, *Case Studies on Transport Policy*, 3 (4), 356-366.

Atelšek, R. (2018). Prehod v zeleno gospodarstvo: priročnik. Celje: Fit media.

Baumeister, R. F., Leary, M. R. (1995). The need to belong: Desire for interpersonal attachement as a fundamental human motivation, *Psychological Bulletin*, 117 (3), 497-529, DOI: 10.1037/0033-2909.117.3.497.

Boyd, T., Kimmet, P. (2006). The Triple Bottom Line Approach to Property Performance Evaluation; School of Construction Management and Property, Queensland University of Technology: Brisbane, Australia.

Brown, D., Dillard, J., Marshall, R.S. (2006). Triple Bottom Line: A Business Metaphor for a Social Construct; School of Business Administration, Portland State University: Portland, OR, USA.

Burnett, J., et al. (2008). Costs and Financial Benefits of Undertaking Green Building Assessments – final report. Hong Kong: Construction Industry Institute. URL:http://ira.lib.polyu.edu.hk/bitstream/10397/2352/1/Green%20Building%20Full%20Report.pdf, 11. 11. 2021.

Choguill, C.L. (2007). The search for policies to support sustainable housing. *Habitat International*, 31(1), 143-149.

Danquah, J. A., Afram, S. O. (2014). Residental user satisfaction of real estate hausing in Ghana. *International Journal of Civil Engineering, Construction and Estate Management*, 1(3), 1-21.

Direktiva 2010/31/EU Evropskega parlamenta in Sveta z dne 19. maja 2010 o energetski učinkovitosti stavb (prenovitev). Uradni list Evropske unije L153, 18. 6. 2010, 13–35.

Direktiva 2012/27/EU Evropskega parlamenta in Sveta z dne 25. oktobra 2012 o energetski učinkovitosti, spremembi direktiv 2009/125/ES in 2010/30/EU ter razveljavitvi direktiv 2004/8/ES in 2006/32/ES. Uradni list Evropske unije L315, 14.11.2012, 1–56.

Direktiva 2018/844/EU Evropskega parlamenta in Sveta z dne 30. maja 2018 o spremembi Direktive 2010/31/EU o energetski učinkovitosti stavb in Direktive 2012/27/EU o energetski učinkovitosti. Uradni list Evropske unije L 156/75, 19. 6. 2018, 75–91.

Dolgoročna strategija za spodbujanje naložb energetske prenove stavb. (2015). Ljubljana: Vlada RS. URL: https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/dolgorocna-strategija-za-spodbujanje-nalozb-energetske-prenove-stavb/. 6. 6. 2020.

Docherty, P., Kira, M., Shani, R. A. B. (2009). Creating Sustainable Work Systems - Developing social sustainability. New York: Routledge. URL: https://www.gacbe.ac.in/images/E%20books/Creating%20Sustainable%20Work%20Systems%20-%20Ed.%202.pdf, 6. 6. 2020.

Ekart, J. (2018). Izboljšane finančne podpore za različna območja po Sloveniji. Svetovalec varčujem z energijo. URL: https://www.varcevanje-energije.si/nepovratna-sredstva-subvencije/izboljsane-financne-podpore-za-razlicna-obmocja-po-sloveniji.html, 20. 8. 2021.

Engle, M., Altschuld, J. W. (2014). Needs assessment: The perspective from the public sector. In J. W. Altschuld & R. Watkins (Eds.), Needs assessment: Trends and a view toward the future. New directions for Evaluation (33-45). Hoboken, NJ: Wiley.

Energetski zakon (EZ-1).Uradni list RS, št. 17/14 z dne 7. 3. 2014.

Erdogan, N., Akyol, A., Ataman, B., Domkeci, V. (2008). Comparison of Urban housing satisfaction in modern and traditional neighborhoods in Edirne, Turkey. *Social Indicators Research*, 81(1), 127-148.

Fulford, R., Smith, L. M., Harwell, M. C. and Dantin, D. D. (2015). Human quality of life differs by community type: Toward reference points in a human quality of life indicator useful for decision support, *Ecological Indicators*, 56, 194-204.

Golob, K., Bastič, M., Pšunder, I. (2016). Analysis of Impact Factors on the Real Estate Market: Case Slovenia. Maribor: University of Maribor.

Grum, Kobal Grum (2015). A model of real estate and psychological factors in decision-making to buy real estate. Urbani izzivi, 26(1), 82-91.

Grum, B., Kobal Grum, D. (2020). Concepts of social sustainability based on social infrastructure and quality of life. *Facilities*, 38 (11/12), 783-800.

Grum, B., Temeljotov Salaj, A. (2013). The comparison of expressed satisfaction and expectations of potential real estate buyers in Slovenia and Japan. *Facilities*, 31(1-2), 6-23.

Judson, E.P., Maller, C. (2014). Housing renovations and energy efficiency: insights from homeowners' practices. *Building Research & Information*, 42(4), 501-511.

Kats, G. H. (2003a). Green Building Costs and Financial Benefits. Cambridge: Massachusetts Technology Collaborative.

Kats, G. H. (2003b). The Costs and Financial Benefits of Green Building – A Report to California's Sustainable Building Task Force. Washington: Capital E. URL: https://noharm-uscanada.org/sites/default/files/documents-files/34/Building_Green_Costs_Benefits.pdf, 10. 1. 2020

Kibert, C. (2008). Sustainable construction: Green building design and delivery. (2nd ed.). New Jersey: John Wiley & Sons.

Kulbickienė, L. (2004). Lietuvos gyventojų kultūriniai poreikiai: kultūros įstaigų vertinimas ir lankymas. Sociologija. *Mintis ir veiksmas*, 8 (2), 64-71.

Kupujte zeleno: priročnik o zelenih javnih naročilih. (2016). Luxembourg: Urad za publikacije EU. URL: https://ec.europa.eu/environment/gpp/pdf/handbook_2016_sl.pdf, 12. 11. 2019.

Lampič, B., et al. (2017). Raziskovalno-razvojne prakse in vrzeli trajnostnega razvoja Slovenije. Ljubljana: Znanstvena založba Filozofske fakultete. URL: https://www.dlib.si/stream/URN:NBN:SI:DOC-0W8ILV3J/91abcc49-b2fe-4c8f-8f1d-5eeedca4d746/PDF, 11. 11. 2020.

Lockwood, C. (2006). Building the Green Way. Harvard Business Review, 6, 1–9.

Mahor, M. (2018). Kaj prinaša nov Zakon o spodbujanju investicij?, Mladi podjetnik. URL:https://mladipodjetnik.si/novice-in-dogodki/novice/kaj-prinasa-nov-zakon-o-spodbujanju-investicij, 17. 8. 2020.

Mangialardo, A., Micelli, E., Saccani, F. (2019). Does Sustainability Affect Real Estate Market Values? Empirical Evidence from the Office Buildings Market in Milan (Italy). *Sustainability*, 11-12, 2-14. doi:10.3390/su11010012

Marinič, M., Kuhta, M., Šuman, N. (2016). Primerjava sistemov meril trajnostne prenove poslovnih stavb. Gradbeni vestnik, let. 65, št. 8, str. 162–175. URL**:** http://www.zveza-dgits.si/primerjava-sistemov-meril-trajnostne-prenove-poslovnih-stavb, 12. 11. 2021.

Missimer, M.R., Broman, G. (2017). A strategic approach to social sustainability – Part 1: exploring social system, *Journal of Cleaner Production*, 140 (1), 32-41.

Mohit, M. A., Ibrahim, M., Rashid, Y. R. (2010). Assessment of Residential Satisfaction in Newly Designed Public Low-Cost Housing in Kuala Lumpur, Malaysia. *Habitat International*, *34*(1), 18-27.

Noll, H.H. (2013). "Subjective Social Indicators: Benefits and limitations for policy making—An introduction to this special issue", *Social Indicators Research*, 114 (1), 1-11.

Olson, L. S., Kellum, S. (2003).The Impact of Sustainable Buildings on Educational Achievements in K-12 Schools. Madison: Leonardo Academy. URL: http://www.cleanerandgreener.org/download/sustainableschools.pdf, 10. 1. 2020.

Omerzu, M. (2019). Vrednostna analiza ključnih nepremičninskih in psiholoških dejavnikov pri odločanju za nakup nepremičnin (magistrsko delo). Ljubljana: Nova Univerza: Evropska pravna fakulteta.

Papler, D., Bojnec, Š. (2010). Ozaveščanje in promocija trajnostnega razvoja energetike in uporabe obnovljivih virov energije. IB Revija, let. 44, št. 2, str. 57–66. URL: http://www.dlib.si/stream/URN:NBN:SI:DOC-1PGKBQZT/791963fe-3e09-4f17-9642-943645e870b3/PDF, 11. 12. 2019.

Pathak, P., Singh, M. P., Sharma, P. (2017). Sustainable manufacturing: an innovation and need for future, 3. izd. Jaipur: Proceedings of international Conference on Recent innovations in Engineering and Technology. URL: https://www.researchgate.net/profile/Mahendra_Singh28/publication/317030927_SUSTAINABLE_MANUFACTURING_AN_INNOVATION_AND_NEED_FOR_FUTURE/links/591fc119aca27295a89e60c5/SUSTAINABLE-MANUFACTURING-AN-INNOVATION-AND-NEED-FOR-FUTURE.pdf, 11. 10. 2020.

Plut, D. (2004). Zeleni planet? Prebivalstvo, Energija in okolje v 21. stoletju. Ljubljana: Didakta.

Praznik, M., Zbašnik-Senegačnik, M. (2016). Trajnostna zasnova energijsko učinkovitih enodružinskih hiš. Ljubljana: Univerza v Ljubljani, Fakulteta za arhitekturo.

Pravilnik o učinkoviti rabi energije v stavbah (PURES). Uradni list RS, št. 52/10 in 61/17 – GZ.

Praznik, M., Zbašnik-Senegačnik, M. (2016). Trajnostna zasnova energijsko učinkovitih enodružinskih hiš. Ljubljana: Univerza v Ljubljani, Fakulteta za arhitekturo.

Resolucija o Nacionalnem programu varstva okolja za obdobje 2020–2030 (ReNPVO20–30). (2020). Ljubljana: Državni zbor RS. URL: http://www.pisrs.si/Pis.web/npbDocPdf?idPredpisa=ODLO1985&type=pdf, 11. 10. 2020.

Rockwood, L. L. (2008). Biodiversity, Wildlife Ecology and Management. V: Foundations of Environmental Sustainability: The Coevolution of Science and Policy. / Rockwood, L. L., Stewart, R. E., Dietz, T. (ur.). New York: Oxford University Press, 63-67.

Rousselot, M. (2018). Energy efficiency trends in buildings. Paris: ODYSSEE-MURE. URL: https://www.odyssee-mure.eu/publications/policy-brief/buildings-energy-efficiency-trends.pdf, 6. 6. 2020.

Reddy, S.V. (2016). Sustainable Construction: Analysis of Its Costs and Financial Benefits. *International Journal of Innovative Research in Engineering & Manag.,* 3 (6), 522-525.

Sam, M., Fauzi, M., Saadatian, O. (2012). Residential Satisfaction and Construction. *Journal of Scientific Research and Essays, 7*(15), 1556-1563.

Sierra, L., Yepes, V. and Pellicer, E. (2017). Assessing the social sustainability contribution of an infrastructure project under conditions of uncertainty, *Environmental Impact Assessment Review,* 67, pp. 61-72, https://doi.org/10.1016/j.eiar.2017.08.003.

Sierra, L., Yepes, V. and Pellicer, E. (2018). A review of multi-criteria assessment of the social sustainability of infrastructures, *Journal of Cleaner Production*, 187, 496-513.

Sirgy, M. J., Cornwell, T. (2002). How neighborhood features affect quality of life. *Social Indicators Research,* 59, 79-114.

Smernica za trajnostno gradnjo. (2013). Ljubljana: Inženirska zbornica Slovenije. URL: http://www.izs.si/fileadmin/dokumenti/publikacije-IZS/Smernice_IZS/Smernica-TG-final-smal.pdf, 13. 11. 2019.

Srdić, A., Šelih, J. (2011). Integrated quality and sustainability assessment in construction: A conceptual model. Technological and Economic Development of Economy, let. 17, št. 4, str. 611–626.

URL: https://www.researchgate.net/publication/233256660_Integrated_quality_and_sustainability_assessment_in_construction_A_conceptual_model, 12. 11. 2021.

Strategija Evropa 2020. (2010). Bruselj: Evropska komisija. URL: http://ec.europa.eu/eu2020/pdf/1_SL_ACT_part1_v1.pdf, 11. 11. 2019.

Šijanec Zavrl, M. (2015). Trajnostna gradnja. Ljubljana: Slovenski gradbeni grozd. URL: http://www.sgg.si/wp-content/uploads/2015/12/OPEN-HOUSE-clanek-Gradbenik-priloga-PH1.pdf, 12. 11. 2019.

Strategija razvoja Slovenije 2030. (2017). Ljubljana: Služba Vlade RS za razvoj in evropsko kohezijsko politiko. URL: https://www.gov.si/assets/vladne-sluzbe/SVRK/Strategija-razvoja-Slovenije-2030/Strategija_razvoja_Slovenije_2030.pdf, 7. 12. 2021.

Suttie, E., et al. (2017). Environmental assessment of bio-based building materials. V: Performance of Bio-based Building Materials / D. Jones, C. Brischke (ur.). Duxford: Woodhead publications, 547-584.

Šelih, J. (2007). Environmental management systems and construction SMEs: A case study for Slovenia. Journal of Civil Engineering and Management, let. 13, št. 3, str. 217–226. URL:https://www.researchgate.net/publication/330407700_Environmental_management_systems_and_construction_SMES_A_case_study_for_Slovenia, 12. 11. 2021.

Šijanec Zavrl, M., Kolšek, J. (2009). LCC kot osnova za trajnostno načrtovanje stavb in gospodarjenje z njimi. Ljubljana: ZRMK institut. URL: https://gi-zrmk.si/media/uploads/public/document/28-lcc_kot_osnova_za_trajnostno_nacrtovanje_stavb_in_gospodarjenje_z_njimi_sl.pdf, 25. 6. 2020.

Šijanec Zavrl, M. (2014). Metode trajnostnega vrednotenja stavb in izkušnje iz uporabe metode OPENHOUSE v Sloveniji ter nagrada GreenBuilding ID za integralno načrtovanje stavb. V: Zbornik o zelenem javnem naročanju na področju stavb in vrednotenju trajnostnih stavb / Gruden, A. (ur.). Ljubljana: Umanotera, str. 24–25. URL: http://www.umanotera.org/upload/files/Umanotera_CEC5_brosura_KONCNI_ZA_INTERNET_mali.pdf, 1. 4. 2020.

Šijanec Zavrl, M., et al. (2017). Poročilo sistemov trajnostnih kriterijev s predlogom prenosa 1. faza – dopolnitev. Ljubljana: Ministrstvo za okolje in prostor. URL: https://www.gov.si/assets/ministrstva/MOP/Dokumenti/Graditev/sistem_trajnostnih_kriterijev_porocilo1.pdf, 13. 10. 2021.

Šijanec Zavrl, M. (2018). Učinkovita raba energije in stavbe. Učno gradivo k temi za predmet: Energetska infrastruktura. Nova Gorica: Nova univerza, Evropska pravna fakulteta.

Šijanec Zavrl, M., Jordan, S. (2018). Trajnostni kriteriji za vrednotenje stavb v Sloveniji: Pregled sistemov trajnostnih kriterijev s predlogom prenosa. Tretja trajnostna konferenca. Ljubljana: GBC Slovenija. URL: gbc-slovenia.si/wp-content/uploads/2018/09/P4-GBC-KONFERENCA-Trajnostni-kriteriji-za-vrednotenje-stavb-v-Sloveniji-Jordan-Šijanec.pdf, 22. 7. 2020.

Špes, M. (2008). Pomen okoljske ozaveščenosti in sodelovanja javnosti za trajnostni razvoj. Dela 29, str. 49–62. URL: http://www.dlib.si/stream/URN:NBN:SI:DOC-VM2Z7T79/b86b57f7-f64b-4314-af88-5cd12acc815d/PDF, 11. 11. 2019.

Tahir, J. A., et al. (2017). Strokovna podpora fokusnim skupinam v sklopu priprave Strategije prostorskega razvoja Slovenije 2050. Ljubljana: Ministrstvo za okolje in prostor RS. URL: https://www.gov.si/assets/ministrstva/MOP/Dokumenti/Prostorski-razvoj/SPRS/02cd6fe2e5/nizkoogljicna_druzba_zakljucki.pdf

The Business Case for Green Building: A Review of the Costs and Benefits for Developers, Investors and Occupants (2013). 2013 World Green Building Coucil. https://www.worldgbc.org/sites/default/files/Business_Case_For_Green_Building_Report_WEB_2013-04-11-2.pdf, 4.11.2021.

Tomažič, R. (2020)Trajnostna gradnja – učinkovita in trajno neškodljiva. Svetovalec varčujem z energijo. URL:https://www.varcevanje-energije.si/novice-rss-zanimivosti/trajnostna-gradnja-koristna-ucinkovita-in-trajno-neskodljiva.html, 6. 6. 2021.

Török, T., Košir, M., Dovjak, M. (2016). Celovito ocenjevanje trajnostnih vidikov gradnje na primeru enodružinske hiše. Gradbeni vestnik, let. 65, št. 11, str. 234–252. URL: http://www.izs.si/fileadmin/dokumenti/msg/Gradbeni-vestnik-november-2016.pdf,11. 11. 2019.

Uredba o zelenem javnem naročanju (ZeJN). Uradni list RS, št. 51/17 z dne 19. 9. 2021.

Vendramin, M. (2019). Letos nekaj korenitih sprememb in novosti, več sredstev za podjetja – EOL 139, 30–31.

Zakon o javnem naročanju (ZJN-3). Uradni list RS, št. 91/15 in 14/18.

Zanuzdana, A., Khan, M. and Kraemer, A. (2012). Housing Satisfaction Related to Health and Importance of Services in Urban Slums: Evidence from Dhaka, Bangladesh. *Socila Indicators Research* Vol. 112, 163-185.

Warren-Myers, G. (2012). The value of sustainability in real estate: a review from a valuation perspective. *Journal of Property Investment $ Finance*, 30 (2), 115-144.

WCED (1987). Our Common future. Oxford: Oxford University Press.

2030 climat & energy framework. Evropska komisija, 2020. URL: https://ec.europa.eu/clima/policies/strategies/2030_sl, 11. 11. 2019

# Starejša generacija in energetska prenova nepremičnin

**Martina Antonič Kogoj**
**Živa Kristl**
*Nova univerza, Evropska pravna fakulteta, Slovenija, Ljubljana*
ziva.kristl@epf.nova-uni.si

**Povzetek:**
Ker se v prihodnjih letih pričakuje bistveno večji obseg energetskih prenov stavb, je potreben celovitejši pristop k uskladitvi njihove okoljske učinkovitosti glede na današnje razumevanje problematike kakovosti notranjega okolja ob spoštovanju kulturnozgodovinskih vrednot. Poseben izziv predstavlja upravljanje in vzdrževanje stavb in znotraj tega področja energetska prenova stavb, ki so evidentirane kot kulturna dediščina, saj vemo, da so starejši manj naklonjeni večjim investicijam in finančno konservativnejši kot mlajše generacije. Študija predvsem obravnava probleme energetske prenove stavb kulturne dediščine povezane s specifiko lokacije, kulture in regulative. Prispevek vsebuje obširen pregled literature na področju obravnavanih tem ter pregled študije o zavedanju uporabnikov o arhitekturni dediščini modernizma, ki je bila izvedena v letu 2021. Problematika, ki se je pokazala v raziskavi, odpira vpogled v razumevanje trenutnega stanja in hkrati nakazuje potrebne ukrepe in ustrezne pristope za ohranjanje modernističnih kvalitet stavb. Nekatere pomanjkljivosti so moteče predvsem za starejšo populacijo, ki je težje mobilna. Moteči dejavniki se bodo zaradi globalnega višanja temperatur v prihodnosti hitro poslabševali, kar lahko povzroči spremembe v odnosu do obravnavanih nepremičnin. Brezbrižen odnos in neurejenost rezultirata v spremenjenem izgledu ali celo degradaciji stavbne dediščine – opazimo lahko tipičen vzorec postopnega spreminjanja izgleda stavb zaradi nenadzorovanih renovacij v lastni režiji. Kot vidimo, ukrepi na generalni rani niso dovolj učinkoviti in bi jih bilo smiselno prilagajati posameznim skupinam uporabnikov glede na tip stavbe in na socio-kulturni položaj lastnikov nepremičnin.

**Ključne besede:** stavbe, energetska prenova, kulturna dediščina, staranje

**Kratice:**
OVE obnovljivi viri energije
SNES skoraj nič energijske stavbe

# 1 Uvod

Ker se v prihodnjih letih pričakuje bistveno večji obseg energetskih prenov stavb, je potreben celovitejši pristop k uskladitvi njihove okoljske učinkovitosti glede na današnje razumevanje problematike kakovosti notranjega okolja ob spoštovanju kulturnozgodovinskih vrednot. Predvsem pa se je pojavila potreba po celostni prenovi stavb. Večstanovanjski objekti so zaradi kompleksne lastniške strukture in družbenih odnosov še posebej zahtevni za prenovo. V nekaterih primerih so posegi omejeni tudi zaradi varstva kulturne dediščine, pogosto pa se zaplete zaradi nejasnih pravil. V zadnjih desetletjih so regulativni ukrepi, zlasti Direktiva o energetski učinkovitosti stavb (EPBD, 2018), dosegli bistven napredek na področju porabe energije v stavbah. Vendar je pomembno razumeti, da bo približno 80 % današnjih stavb leta 2050 še vedno v uporabi in da jih je 75 % energetsko neučinkovitih (Hermelink idr., 2019). V zadnjih letih so v EU poročali o zelo nizkih stopnjah energetske obnove. Najbolj izrazit problem je, da se več kot 90 % energetskih prenov stanovanj izvede v kombinaciji z ukrepi neenergetske prenove. Po drugi strani je stopnja neenergetskih prenov bistveno višja od stopnje čistih energetskih prenov (Hermelink idr., 2019). Za doseganje ciljev evropskega zelenega dogovora (COM 640, 2019) in ogljične nevtralnosti do leta 2050 se bodo morale stopnje energetskih prenov v prihodnjih desetletjih vsaj podvojiti.

Raziskave in poročila poudarjajo probleme nizkih proračunov za energetsko prenovo. Socialno šibkejšim je težje dostopati do različnih možnosti financiranja, posebej pa so ranljivi starejši. Po študiji ZN o bivalnih oblikah starejših ljudi v svetu (UN, 2001) ena od sedmih starejših oseb živi sama; to pomeni približno 90 milijonov ljudi; večinoma so to ženske in med njimi jih je veliko že ovdovelih. Ob popisu 2002 je bilo med vsemi gospodinjstvi v Sloveniji slaba tretjina takih, v katerih je bil vsaj en član gospodinjstva star najmanj 65 let (od teh v 8,8 % gospodinjstev dva ali več) (Vertot, 2010). Zato so bivalne razmere starejših prebivalcev v zvezi s staranjem prebivalstva v 21. stoletju poseben izziv za vlade vseh držav saj morajo vladne politike vse bolj vključevati kombinacijo ukrepov, ki med starejšimi spodbujajo zanašanje nase in druge ukrepe (Vertot, 2010). Po mnenju Ugarte idr. (2016) sta dve od glavnih težav, s katerimi se soočajo socialno šibka gospodinjstva, neprimerne notranje temperature in visoka vlažnost. Po drugi strani so v zadnjih letih študije na področju pričakovanj potencialnih kupcev stanovanjskih nepremičnin definirale nekatere bistvene dejavnike, ki vplivajo na odločitve v zvezi z nakupom. Te so poleg lokacije (Golob, Bastič, Pšunder, 2016) bistveno povezane z ugodjem v prostoru. Nekateri raziskovalci celo ugotavljajo, da so za potencialne kupce

nepremičnin stanovanjske razmere eden od glavnih parametrov pri določanju bivalnega zadovoljstva. Najpomembnejša sta centralno ogrevanje in spletni dostop, poleg tega pa so izpostavljeni še dejavniki povezani s prometom, osončenostjo in dostopom do zelenih površin. Pomembni so tudi socialno-ekonomski dejavniki (stroški vzdrževanja, sosedski odnosi, občutek varnosti, občutek socialne povezanosti, občutek ustreznega ekonomskega statusa) (Grum, Temeljotov Salaj, 2013).

Špes (2008) sicer ugotavlja, da za Slovenijo na splošno velja relativno dobra deklarativna ekološka ozaveščenost, bolj problematičen pa je velik razkorak z okoljskim ravnanjem in relativno slabim dejanskim okoljskim obnašanjem. Podoben pojav zapazimo tudi na področju posegov v nepremičnine. Zaradi zgoraj navedenih izzivov so posegi v stavbe kulturne dediščine pogosto neustrezni, saj deležniki parcialno rešujejo težave, objektov v katerih bivajo pa ne dojemajo kot dediščino (Kristl idr., 2020; Senior idr., 2021). S tem pa se v polnem obsegu ne izkoriščajo prednosti prenove kulturne dediščine v smislu trajnostnega razvoja mest in doseganja pozitivnih vplivov na prebivalce Kutut (2017). Glavna področja obravnave so:

- kako specifični so problemi v kontekstu lokacije in kulturnega okolja,
- kako odnos do nepremičnin vpliva na nenadzorovane prenove stavb, ki lahko rezultirajo v spremenjenem izgledu ali celo degradaciji stavbne dediščine,
- kako dobro poznamo tehnične, ekonomske, socialne in vedenjske vzorce kot tudi regulatorne in finančne izzive trajnostne prenove zaščitenih stavb,
- kako lahko uporabimo holistične pristope, ki bodo izboljšali delež trajnostne prenove, ki trenutno zaostaja zaradi socio-kulturnih ovir.

Raziskovalni pristop je navezan na iniciativo za Novi evropski Bauhaus (2021), ki poskuša povezati kulturne, socialne in tehnološke aspekte bivalnega okolja. Tak proces ima lahko vpliv na ekonomijo in družbo in vsekakor zahteva multudisciplinaren pristop. Za nekaj teh vprašanj delno postavijo temelje že izvedene študije, predvsem študija Antonič-Kogoj (2021).

## 2 Področje energetske prenove in starejša populacija

Večina držav članic EU se spopada s posledicami postopnega staranja prebivalstva. Tak demografski razvoj vpliva na pomembne družbene spremembe tako na področju zdravstvenega in socialnega varstva, kot tudi prebivanja, zaposlovanja in preživljanja prostega časa. Ker

znotraj vsake družbe generacije sobivajo, je potrebno rešitve poiskati v medsebojnem dogovoru (Vertot, 2010). Poseben izziv predstavlja upravljanje in vzdrževanje stavb in znotraj tega področja energetska prenova stavb, ki so evidentirane kot kulturna dediščina, saj vemo, da so starejši manj naklonjeni večjim investicijam in finančno konservativnejši kot mlajše generacije (IPSOS, 2019). Informacije v medijih, socialna omrežja in finančne institucije delujejo bolj spodbudno na mlajše uporabnike (IPSOS ,2019).

Zanimive zaključke o pomenu prenove kulturne dediščine za trajnostni razvoj mest in pozitivne učinke na prebivalce podaja Kutut (2017), ki izpostavlja, da se s prenovo prepreči napredovanje fizičnega, ekonomskega in socialnega propadanja objektov. Prenova kulturne dediščine mora biti vključena v razvoj mesta, saj to pripomore k dvigu kvalitete okolja, vključno z njegovo zgodovino in nadaljnjim gospodarskim razvojem. Pri tem avtor uporablja različne metode, npr. vrednotenje stavb kulturne dediščine na podlagi zgodovinskih in arhitekturnih kriterijev, določanje vrednosti zemljiške parcele, amortizacije stavbe in upoštevanje različnih izhodišč za vrednotenje stavbe locirane na zaščitenem območju. Proces je zapleten in dolgotrajen a nujen, saj se le tako lahko zadovoljijo vse zahteve in nove potrebe. Podobno ugotavljajo tudi drugi avtorji, ki priložnost vidijo predvsem v zagotavljanju visoke energetske učinkovitosti ob istočasnem zagotavljanju varovanja dediščine in upoštevanju družbenih, funkcionalnih in estetskih kvalitet ter pomembnih vprašanj upravljanja (Johansson idr., 2016). Študije sicer nakazujejo, da je s primernimi ukrepi mogoče doseči precej nizko porabo energije za delovanje stavbe in se približati SNES ravni (Gremmelspacher idr., 2021).

Ob tem Zancanella idr. (2018) ugotavljajo pozitiven vpliv vlaganj v energetsko učinkovitost stavb na tveganje neodplačevanja posojil. V skladu s temi ugotovitvami povečan delež naložb v energetske prenove stavb ponuja različne koristi za posameznike, družbo in različne segmente gospodarstva s tem, da se koristi pojavljajo predvsem v obliki prihrankov in ne prihodkov. Poleg tega avtorji ugotavljajo, da so projekti energetskih prenov na splošno majhni in razdrobljeni ter so pogosto vključeni v projekte ki imajo drugačne cilje, npr. posodabljanje stavbe, kar lahko vpliva na optimalnost energetskih rešitev in ogrozi gospodarske koristi. V članku, ki analizira vzvode in rezultate sofinanciranja energetskih prenov v Sloveniji (Dolšak idr., 2020), avtorji ugotavljajo, da je glede na tip stavbe, bivanje v večstanovanjski stavbi pozitivno povezano z naložbami v energetsko učinkovitost. Možna razlaga je, da je investicijski strošek energetsko učinkovitih sanacij na gospodinjstvo v večstanovanjski stavbi bistveno nižji kot pri enostanovanjskih stavbah. Poleg tega imajo gospodinjstva v večstanovanjskih stavbah

zakonsko obveznost mesečno prispevati v rezervni sklad namenjen za prenovo stanovanj, kar olajša zbiranje potrebnih sredstev. Upravljavci stavb, ki so odgovorni za investicije v stavbe, vzdrževanje in obnove, lahko tudi predstavljajo zunanjo spodbudo za začetek aktivnosti energetske prenove, s prevzemom koordinacijske vloge v celotnem procesu prenove pa razbremenijo tudi lastnike stanovanj. Vse to lahko pozitivno vpliva na soglasnost stanovalcev za začetek prenove. Analiza istih avtorjev glede na lokacijo pokaže, da je verjetnost prenove v urbanih območjih bistveno večja kot na podeželju. Glede na značilnosti stanovanj pa so gospodinjstva, ki živijo v starejših stavbah bolj nagnjena k vlaganju v energetsko učinkovitost v primerjavi s tistimi v novejših stavbah, medtem ko velikost bivalne površine nima vpliva na verjetnost naložbe. Pričakovano, gospodinjstva v regijah z nižjimi povprečnimi temperaturami svoje domove prenavljajo bistveno bolj v primerjavi s tistimi v toplejših regijah. Zanimiva je tudi ugotovitev, da izdatki gospodinjstva za elektriko povečajo verjetnost prenove, medtem ko izdatki za ogrevanje presenetljivo ne vplivajo na verjetnost prenove. Temu pritrjuje tudi študija IPSOS (2019), ki navaja, da so podatki v zvezi s porabo energije in s tem povezani stroški znotraj EU najpomembnejši razlog za odločitev glede energetske prenove stavbe. Ugodna posojila in subvencije delujejo kot dodatna podpora s strani države in so podobno učinkovite v vseh članicah EU (IPSOS 2019).

Vidimo, da je upravljanje z objekti, ki ga sicer širše poznamo kot »*facility management*«, pomemben dejavnik pogostejšega pristopanja k energetskih prenovam. V preteklosti je bilo upravljanje povezano predvsem s sprotnim upravljanjem in vzdrževanjem objektov, danes pa vključuje vse več vidikov strateškega managementa od obratovanja in vzdrževanja do načrtovanja razvoja in upravljanja. Področje pokriva vedno širše polje upravljanja z nepremičninami in že posega na področje finančnega upravljanja, zdravja in varnosti, vplivov na okolje, gradbenega inženiringa, upravljanja pogodb in podobnih dejavnosti. V prihodnosti se že nakazujejo nove smeri razvoja področja upravljanja objektov, ki vključujejo dinamičen razvoj socialne infrastrukture, demografske modele, večkriterno optimizacijo, trajnostne pristope, uporabo različnih komunikacijskih metod in druge (Temeljotov Salaj, Lindkvist, 2020; Senior idr., 2021).

# 3 Zakonodaja in druge podlage

V nadaljevanju so na kratko predstavljeni zakoni, pravilniki in smernice, ki jih je treba upoštevati pri posegih in prenovah stavb kulturne dediščine. Stavbe pokriva:

- splošna gradbena zakonodaja, kot je gradbeni zakon in pravilnik o upravljanju večstanovanjskih stavb,
- dokumenti s področja varovanja kulturne dediščine,
- strateški in regulatorni dokumenti s področja zmanjševanja porabe energije v stavbah.

Dokumentacija na področju je precej obširna, zato v nadaljevanju vključujemo le glavne strateške in regulatorne dokumente.

## 3.1 Splošno

*Gradbeni zakon*

Gradbeni zakon (GZ, 2021) v 2. členu opredeli namen:

(1) Namen tega zakona je zaščita javnega interesa pri graditvi objektov.

(2) Za javni interes iz prejšnjega odstavka se štejejo predvsem varnost objektov, spoštovanje načela enakih možnosti, varstvo okolja, ohranjanje narave, varstvo voda, varstvo kulturne dediščine, spodbujanje trajnostne gradnje, skladnost umeščanja objektov v prostor, arhitektura kot izraz kulture, evidentiranje, uporabnost, učinkovitost, kakovost objektov in njihova usklajenost z okoljem v njihovem celotnem življenjskem ciklu.

(3) Namen tega zakona se uresničuje s projektiranjem, dovoljevanjem, gradnjo, uporabo, vzdrževanjem in inšpekcijskim nadzorom.

(4) Objekti morajo biti skladni s prostorskimi izvedbenimi akti in predpisi o urejanju prostora, izpolnjevati morajo bistvene in druge zahteve ter biti evidentirani. Gradnjo je treba izvajati skladno z gradbenim dovoljenjem.

(5) Pristojni organi pri graditvi objektov in vsi udeleženci pri graditvi objektov so vsak zase ter v okviru pravic in dolžnosti, ki jih določajo predpisi, dolžni zagotavljati izpolnjevanje zahtev iz prejšnjega odstavka.

V drugem delu v okviru bistvenih in drugih zahtev za objekte (25. člen) zakon določa tudi pogoje pod katerimi lahko rešitve odstopajo od predpisanega izpolnjevanja bistvenih zahtev:

(1) Objekti morajo izpolnjevati bistvene zahteve glede na namen, vrsto, velikost, zmogljivost, predvidene vplive in druge značilnosti objekta ter druge zahteve.

(2) Bistvene zahteve za objekte so:

1. mehanska odpornost in stabilnost,
2. varnost pred požarom,
3. higienska in zdravstvena zaščita ter zaščita okolja,
4. varnost pri uporabi,
5. zaščita pred hrupom,
6. varčevanje z energijo, ohranjanje toplote in raba obnovljivih virov energije,
7. univerzalna graditev in uporaba objektov ter
8. trajnostna raba naravnih virov.

(3) Druge zahteve so posebne funkcionalne, okoljske in druge lastnosti, ki jih morajo izpolnjevati tudi posamezne vrste objektov.

(4) Na objektih se lahko izvajajo rekonstrukcija, manjša rekonstrukcija, vzdrževanje, vzdrževalna dela v javno korist ali pa se jim spreminja namembnost tako, da so izpolnjene bistvene in druge zahteve, ki veljajo v času spreminjanja objekta, pri čemer se preverjanje izpolnjevanja teh zahtev omeji na tiste bistvene in druge zahteve, ki so predmet spreminjanja objekta.

(5) Zahteva glede izpolnjevanja bistvenih in drugih zahtev iz prejšnjega odstavka se ne uporablja, če je to tehnično neizvedljivo ali povezano z nesorazmernimi stroški. Pri spreminjanju objektov se gradbenotehnične lastnosti objekta ne smejo poslabšati.

(6) V objektih, varovanih na podlagi predpisov s področja varstva kulturne dediščine, lahko projektirane ali izvedene rešitve odstopajo ali ne dosegajo predpisanih bistvenih in drugih zahtev, če to izhaja iz mnenja ali pogojev pristojnega mnenjedajalca za področje kulturne dediščine, pri čemer z odstopanjem ne smejo biti neposredno ogroženi varnost objekta, življenje in zdravje ljudi, sosednje nepremičnine ali okolje.

V 105. členi pa ureja (sodna presoja nesorazmernosti posega inšpekcijskega ukrepa v dom) in v 4. členu določa upravičenost zaščite javnega interesa:

(4) Zaščita javnega interesa je upravičena, če država zasleduje legitimne cilje, kot so na primer:

- varstvo človekovih pravic in temeljnih svoboščin drugih oseb,
- varstvo zdravja in življenja ljudi,
- varnost države,

- varstvo okolja in ohranjanje narave,
- varstvo voda,
- varstvo kulturne dediščine,
- varstvo kulturne krajine in kakovostnega grajenega okolja.

(5) Sodišče nemudoma obvesti pristojnega inšpektorja o izdanih aktih iz tega člena in o njihovi pravnomočnosti.

*Pravilnik o upravljanju večstanovanjskih stavb*

Pravilnik o upravljanju večstanovanjskih stavb (2013, čl. 1.–33) natančneje določa posle upravljanja in pooblastila upravnika ter merila delitve obratovalnih stroškov v večstanovanjski stavbi in arhitekturno politiko. Leta 2017 jo je sprejela Vlada Republike Slovenije in je zavezujoča za vsa prihodnja dejanja države na tem področju. Arhitekturna politika (2017) ima štiri temeljne cilje: kakovostna arhitektura, pametna rast, trajnostni razvoj in vključujoča arhitektura.

## 3.2 Pregled dokumentov s področja varovanja kulturne dediščine

*Mednarodna listina ICOMOS in mednarodna organizacija DOCOMOMO*

Področje arhitekturne dediščine je urejeno v mednarodni listini in dokumentih ICOMOS – Doktrina 2 (2014, str. 15–19). Organizacija v dokumentih poudarja, da ohranjanje, urejanje in obnova stavbne dediščine zahtevajo multidisciplinaren pristop. Vrednost in avtentičnost arhitekturne dediščine ne moreta temeljiti na enovitih in dokončnih merilih, ker vzajemno spoštovanje kultur med drugim zahteva, da je potrebno fizično dediščino obravnavati v vsakokratnem kulturnem kontekstu. Vrednost arhitekturne dediščine ni samo videz, temveč tudi celovitost vseh sestavnih delov stavbe kot enkraten in neponovljiv izraz gradbenih tehnik svojega časa. V organizaciji predlagajo pristope k prenovam kot so redno vzdrževanje, minimalnost in reverzibilnost posegov, ukrepe v zvezi s pregledi, nadzorom in rednim opazovanjem pa je treba dokumentirati in hraniti kot del zgodovine objekta.

Pomemben je tudi prispevek mednarodne organizacije DOCOMOMO (angl. *Documentation and Conservation of Modern Movement*) (2020), ki se ukvarja z dokumentiranjem in

varovanjem arhitekture modernega gibanja. Delo slovenske sekcije DOCOMOMO, predvsem projekt Evidenca 1945–70, ki je pomemben tudi za to raziskavo.

*Zakon o varstvu kulturne dediščine*

V Sloveniji področje varovanja kulturne dediščine ureja Zakon o varstvu kulturne dediščine (ZVKD, 2018). Poglavitne naloge so:

- identifikacija, vrednotenje in dokumentiranje kulturne dediščine;
- priprava predlogov za vpis dediščine v register, ki ga vodi Ministrstvo za kulturo;
- priprava konservatorskih načrtov in restavratorskih projektov;
- nadzor nad gradbenimi, raziskovalnimi in zaščitnimi posegi kot tudi njihovo izvajanje;
- nadzor in izvajanje arheoloških raziskav;
- posredovanje nasvetov lastnikom kulturne dediščine, izobraževanje, popularizacija.

Strateški cilji so naslednji:

- zagotoviti učinkovito strokovno in pravno varstvo dediščine ob spoštovanju mednarodnih konvencij, ki jih je sprejela Republika Slovenija, in omogočiti njeno vključevanje v sodobno življenje;
- zagotavljanje stabilnih sredstev za izvajanje državne javne službe in skrb za pridobitev dodatnih finančnih sredstev za izvajanje projektov;
- izboljšanje organizacije in načina dela ter homogeno delovanje zavoda;
- izdelava strokovnih standardov spomeniškovarstvene službe;
- popularizacija kulturne dediščine in njenega varstva;
- večja vloga kulturne dediščine Slovenije v mednarodnem prostoru.

## 3.3 Pregled dokumentov s področja energijske učinkovitosti zgradb

V zadnjem obdobju je bilo objavljenih precej novih dokumentov, ki močno vplivajo na stavbe, poleg EPBD (2010) in njene prenove (EPBD, 2018) tudi Strategija vala prenov (2020) z načelom energetske učinkovitosti in še nekatere, tudi regulatorni ukrepi kot je davek na ogljik. Tudi posledice covid19 kažejo nekatere negativne učinke kar se odraža tudi na področju stanovanjskega sektorja npr. v povečanem deležu gospodinjstev, ki ne zmorejo finančno pokrivati stroškov ogrevanja (Val prenove, 2020).

*Strategija Evropske komisije: Val prenove za Evropo – ekologizacija stavb, ustvarjanje delovnih mest, izboljšanje življenj*

Val prenove za Evropo (2020) obsega ključne cilje za prenovo stavb do leta 2030 in 2050 v katero so vključeni vsi dotični sektorji in akterji. Na prvem mestu je v valu prenove omenjena energijska učinkovitost stavb in učinkovitejša raba virov. Ukrepi so usmerjeni predvsem v razogljičenje ogrevanja in hlajenja, v reševanje vprašanj energijske revščine in energijsko najmanj učinkovitih stavb ter v prenovo javnih stavb. Pomemben je razvoj lokalnih pristopov. Prenova posega tudi na področje zdravja in okoljskih vplivov. Preko pobude za Novi evropski Bauhaus (2021) je vključena tudi estetska in arhitekturna kakovost, kjer se spoštujejo načela upoštevanja zasnove ter ohranjanja dediščine in širšega javnega prostora.

Posebej so izpostavljeni neustrezno udobje in sanitarni pogoji v stanovanjskih in delovnih okoljih, kot so neprimerne notranje temperature, slaba kakovost zraka in izpostavljenost škodljivim kemikalijam in materialom, ki prispevajo k nižji produktivnosti, zdravstvenim težavam ter višji umrljivosti in obolevnosti. Komisija je v začetku leta 2021 izdala smernice o načelu energetske učinkovitosti, da bi javnim organom pomagala pravilno upoštevati vse stroške in širše koristi naložb v grajeno okolje, ki bi jih bilo mogoče praktično uporabiti pri javnih naročilih.

*Slovenska dolgoročna strategija energetske prenove stavb do leta 2050 (DSEPS)*

V prihodnje se bodo vlaganja v energetske prenove stavb močno povečala, saj je na vseh področjih delovanja treba bistveno znižati emisije toplogrednih plinov. Cilj Dolgoročne strategije energetske prenove stavb do leta 2050 (DSEPS, 2021) je, da bo do leta 2050 energetsko prenovljenih 74 % enostanovanjskih in 91 % večstanovanjskih stavb. Pri tem se bo končna raba energije zmanjšala za 45 %, emisije $CO_2$ pa za skoraj 75 % glede na leto 2005. Pri tem igrajo pomembno vlogo obnovljivi viri energije. Dve tretjini stavb predstavljajo stanovanjske stavbe, za katere DSEPS predvideva nove finančne in druge instrumente. V večstanovanjskih stavbah se najpozneje do leta 2024 uvede instrument t. i. izkaznice stavbe, ki opredeljuje energetski, požarni in potresni vidik prenove ter podaja smernice za priporočljive in zahtevane ukrepe za postopno širšo prenovo. DSEPS se preusmerja iz delnih v celovite energetske (skoraj nič energijske) stavbe.

Kljub dokazani ekonomski in okoljski koristi je stopnja energetskih prenov stavb v EU še vedno precej pod pričakovano. Analiza projektov energetske prenove (DSEPS, 2021) javnih stavb kulturne dediščine je pokazala, da so naložbe v energetsko prenovo fasadnega ovoja in strehe večinoma manjšega obsega kakor pri stavbah, ki niso zaščitene kot kulturna dediščina, naložbe v zamenjavo oken pa nekoliko višje. Razlogi za to so predvsem tehnični, povezani z robnimi pogoji varstva kulturne dediščine. Lastniki stavb in investitorji se vsak dan soočajo z različnimi ovirami, med katerimi sta ključnega pomena omejena možnost financiranja in pomanjkanje znanja. Zato EU s pomočjo »potnega lista za prenovo stavb« (angl. *Building renovation passport* – BRP) predlaga sistem postopnih energetskih prenov, ki bodo olajšale izvajanje posegov in omogočile optimalnejše rezultate (Fabbri idr., 2016).

*Smernice za energetsko prenovo stavb kulturne dediščine*

Smernice za energetsko prenovo stavb kulturne dediščine (Vendramin idr., 2016), pripravljene pod okriljem Ministrstva za infrastrukturo RS, obsegajo pregled stanja in predlagane ukrepe na tem področju. Njihov namen je zagotoviti tehnično podporo v procesu načrtovanja energetske prenove in omogočiti lastnikom stavb kulturne dediščine enakopravnejšo obravnavo pri pridobivanju finančnih virov za prenovo. Smernice so namenjene tudi strokovnim službam kot pomoč pri svetovanju lastnikom stavb, predvsem glede vnaprejšnjega seznanjanja z omejitvami pri izvedbi ukrepov energetske sanacije in ustreznega načrtovanja.

*Energetska sanacija stavb slovenskega modernizma*

Društvo arhitektov Ljubljana in Zveza društev arhitektov Slovenije sta v sodelovanju z Ministrstvom za kulturo in Zavodom za varstvo kulturne dediščine leta 2014 pripravila zloženko o energetski sanaciji stavb slovenskega modernizma. Usmeritve v tej zloženki so namenjene osnovnemu obveščanju o vzdrževanju in energetski sanaciji stavb iz tega obdobja. Namenjena je arhitektom ter naročnikom in izvajalcem, ki izvajajo energetsko sanacijo stavb, prepoznanih kot del kulturne in stavbne dediščine. Prihranek energije mora biti zagotovljen na tak način, da originalna arhitekturna zasnova in izgled stavbe ostaneta nespremenjena. Njihovi predlogi glede sanacije so namenjeni predvsem vgradnji toplotne izolacije, obnovi zaključnega sloja in drugih elementov fasade, obnovi ali zamenjavi stavbnega pohištva, obnovi ali zamenjavi strešne kritine in sprejemljivosti namestitve zunanjih enot strojne opreme (npr. klimatske naprave in toplotne črpalke) (Oživljena moderna, 2014, str. 1–2).

# 4 Pregled predhodnih študij in drugih relevantnih dokumentov

## 4.1 Energetska prenova stavb

Dosedanje razprave se precej enostransko osredotočajo na zmanjševanje porabe energije in ovire za izvajanje obstoječih energetsko učinkovitih ukrepov obnove, pa tudi na velik obseg stanovanjskih stavb zgrajenih po letu 1960. Potreba po energetski prenovi je enako nujna tudi pri starejših stavbah, tudi tistih ki so že bile obnovljene, in potrebujejo nadaljnje posege (Johansson idr., 2016). Stanovanjska stavbna dediščina v sredozemski regiji se sooča z dodatnimi izzivi na področju energetske učinkovitosti in kakovosti notranjega okolja, kot so npr. potresna ogroženost in različni vplivi podnebnih sprememb. V tem kontekstu je pomembno oceniti, ali se lahko ohranjanje njihovih značilnosti zagotavlja sočasno s trenutnimi zahtevami glede energetske učinkovitosti. Da se preprečita zanemarjanje in degradacija, je poleg tega pomembna tudi vključenost ukrepov energetske prenove stavb v načrte za razogljičenje mest (Caro idr., 2021). Zaradi specifičnih podnebnih in kulturnih značilnosti se v Sredozemlju pojavljajo nekoliko drugačni pristopi kot v srednji in zahodni Evropi. Stavbe so na tem območju predvsem izpostavljene poletnemu pregrevanju, kar se bo zaradi globalnega segrevanja še stopnjevalo. Nekatere strategije zato vključujejo povečanje toplotne mase stavbnega ovoja in uvedbo ukrepov za izboljšanje učinkovitosti naravnega prezračevanja, predvsem ponoči. Rezultati nakazujejo (Silvero idr., 2018), da uporabljena strategija prispeva k občutnemu zmanjšanju pregrevanja in omogoča ohranjanje udobnih notranjih razmer, kar prispeva k izboljšanju počutja stanovalcev. Smiselno bi bilo tudi uvesti lokalne predpise za toplotno učinkovitost stavb in ob tem upoštevati parametre sprejemljivosti, saj je za določene podnebne značilnosti smiselno predpisati veliko toplotno maso.

Nekoliko drugačen pristop predlagajo Caro idr. (2021), ki sicer podajajo primer energetske prenove nekoliko starejših stavb, vendar je rešitve mogoče aplicirati tudi širše. Izboljšanje toplotnih lastnosti stavbnega ovoja je kombinirano z mehanskim prezračevanjem in vgrajeno toplotno črpalko, ki za pokrivanje energetskih potreb uporablja OVE in električno energijo iz javnega omrežja. Kljub zahtevnemu upoštevanju standardov energetske učinkovitosti v projektih energetske prenove stavbne dediščine, rezultati dokazujejo, da se je s primernim pristopom mogoče približati ravni SNES.

Glede na velik obseg stavb, ki jih je potrebno prenoviti, več študij obravnava uporabo nacionalnih baz podatkov, kot so GIS, kataster nepremičnin in statistični podatki, za

evidentiranje in analizo stavbnega fonda, ki potrebuje energetsko prenovo. Podatki, potrebni za zagotavljanje teh informacij, bi morali biti operativni in primerni za zgodnje faze načrtovanja prenov. Namen ene takih študij (Andersen idr., 2021) je raziskati možnosti uporabe informacij iz javnih registrov in baz podatkov o obstoječih stavbah kot možnih vhodnih podatkov za informiranje projektantov in drugih deležnikov o potencialu prenove obstoječih stavb, predvsem v zgodnjih fazah načrtovanja. Pristop vključuje vrednotenje kazalnikov trajnosti za notranje pogoje, prihranke energije, prilagodljivost, cenovno dostopnost, sestavo stavbnih elementov, možnosti recikliranja itd. Z izbiro osemnajstih kazalnikov trajnostnosti v zvezi z njihovo družbeno, okoljsko in gospodarsko učinkovitostjo ter izbranimi podatki je bilo mogoče pregledati gradbeno zakonodajo in zakonodajo o odpadkih ter opredeliti ustrezne zahteve za zbiranje podatkov. Tudi možnosti uporabe javno dostopnih podatkov kot enostavno dosegljivega in časovno učinkovitega vira podatkov so vse večje. Vendar bi moralo biti z nadaljnjim razvojem registrov in izboljšanjem digitalnih metod potrjevanja in izboljšanja kakovosti podatkov v registrih mogoče razširiti možnosti uporabe javnih podatkov kot orodja za pregledovanje pri načrtovanju in ocenjevanju potenciala trajnostne prenove in oblikovanja krožnih strategij.

Caputo in Pasetti (2017) sta npr. razvila metodologijo, ki omogoča hitro izdelavo GIS modela in orodij za občine. Z orodjem je mogoče izbrati stavbe, ki najbolj potrebujejo obnovo ali ki bi jih bilo mogoče najenostavneje obnoviti. S primerno zbranimi informacijami in z namenskimi storitvami bi lahko lokalne oblasti lažje prepričale lastnike v energetsko prenovo stavb.

Ob tem je potrebno razvijati tudi primerne pristope, prilagojene različnim kulturnim in socialnim okoljem. Da bi razumeli stanje obravnavanega stavbnega fonda, uporabljamo pristopa od zgoraj navzdol in od spodaj navzgor (Johansson idr., 2016). Pri pristopu od zgoraj navzdol se zbirajo podatki iz različnih virov kot so energetske izkaznice, državni register nepremičnin in GIS. Z združevanjem informacij iz zbirk podatkov je mogoče določiti tri podskupine stavb za pristop od spodaj navzgor: neobnovljene stavbe, v manjšem obsegu že obnovljene stavbe in temeljito obnovljene stavbe. Vsekakor pa je potrebno vseskozi ozaveščati javnost o pomenu ukrepov. Kot ugotavljata Azhari in Mohamed (2012) zaznava javnost ohranjanje stavb arhitekturne dediščine različno. Avtorja menita, da bo potrebno nadaljnje ozaveščanje in vključevanje javnosti na vseh ravneh, npr. preko množičnih medijev, kot so časopisi, televizija, radio, brošure in internet. Izobraževanje je pomembno zlasti pri mlajših generacijah.

## 4.2 Prenove in modernistična arhitektura

Tomšič idr., (2017) menijo, da je predpogoj za vsako prenovo ustrezno poznavanje zakonodaje in posebnih zahtev varstva kulturne dediščine. Vsako stavbo, zlasti kulturno dediščino, je treba gledati ne le kot samostojen objekt, temveč kot pomemben del okolja, kamor je umeščena. Da se zagotovi trajnost naložbe, morajo biti energetska prenova in drugi posegi izvedeni v skladu z lokalnimi značilnostmi. V večstanovanjskih stavbah je treba v načrtovanje prenove vključiti lastnike, saj morajo biti ti seznanjeni z vplivom različnih dejavnikov na porabo energije. Ključno za uspešno spopadanje z izzivi ohranjanja arhitekturne dediščine 20. stoletja je tudi razumevanje modernističnega pristopa (Requena-Ruiz, 2016). Stavbe je smiselno prilagoditi sedanjim potrebam in okolijskim merilom, obenem pa je treba upoštevati rešitve modernistične arhitekture glede na podnebne značilnosti, notranje razmere in toplotno ugodje prebivalcev. Cilj je uskladiti okoljsko učinkovitost arhitekture glede na današnje razumevanje problemov toplotnega ugodja ob spoštovanju kulturnih in zgodovinskih vrednot.

V aplikativni raziskavi z naslovom Evidenca in valorizacija objektov slovenske moderne arhitekture med leti 1945–70 (Ravnikar idr., 2000) je prikazanih 120 arhitekturnih del, ki predstavljajo poseben dosežek in jih uvrščamo med pomembno arhitekturno dediščino obdobja 1945–1970 v Sloveniji. Dvajset najpomembnejših del je podrobneje predstavljenih in valoriziranih. Opredeljeno je, kakšen je bil njihov pomen v obdobju nastanka in katere so njihove kvalitete. Ovrednotena sta njihovo obstoječe stanje in ogroženost. Med drugimi so predstavljeni tudi stanovanjski bloki na Kidričevi ulici 29–34 v Novi Gorici, zgrajeni leta 1948, ki so tudi predmet obravnave študije Antonič-Kogoj (2021). Za Novo Gorico so omenjeni:

»Urbanizem mesta Nova Gorica, arhitekt Edvard Ravnikar (delno izveden projekt), Nova Gorica 1947–1951, kjer je treba varovati izvorno ortogonalni princip izgradnje mesta prostostoječih objektov v zelenju, brez vogalov in obulične pozidave«.

»Stanovanjski bloki, Kidričeva ulica 29–34, Edvard Ravnikar, Nova Gorica, 1948. Šest blokov ob Kidričevi ulici udejanja Ravnikarjev urbanistični koncept Nove Gorice kot modernega mesta objektov v zelenju. Položaj blokov pravokotno na Kidričevo ulico vzpostavlja zeleni prospekt in obenem velike zelene površine med objekti. Poševni strešni zaključki dajejo blokom specifično identiteto in obenem poudarjajo višino stavbnega volumna proti glavni ulici. Kljub preprostemu videzu so stavbne mase subtilno artikulirane. Plitvi zamiki na severni, polni fasadi

se odražajo na južni, odprti strani kot razmerje med polnim zidom in velikimi ložami. Varovati je treba urbanistično zasnovo, odprte zelene medprostore in južne fasade«.

Avtorji ugotavljajo, da so pri teh objektih najbolj ogroženi prosti tlorisi, fasade, vidni betoni, montažni elementi, okvirji zasteklitev, prosojnost steklenih površin, interjerji in avtorski detajli. Predlagajo ustanovitev strokovnih komisij, ki prispevale svoj delež pri odločanju in izdajanju potrebnih soglasij za posege. Avtorji ugotavljajo, da je nujna večja ozaveščenost o kvaliteti modernistične arhitekture tako med strokovno kot splošno javnostjo. Vzrok je premajhno poznavanje tega obdobja, predvsem pa manko razumevanja, kakšno vrednost ima arhitektura moderne. Pereče je tudi pomanjkanje izdelanih meril in predvsem izkušenj tistih, ki se s tem ukvarjajo. V nadaljevanju ugotavljajo, da je precej lažje obnavljati stavbo iz 17. stoletja kot pa stavbo iz 20. stoletja, saj so pri slednji uporabljeni materiali iz obdobja industrijske revolucije (Ravnikar idr., 2000).

Kot izhodišče (Antonič-Kogoj, 2021) je pomemben tudi članek o sanaciji večstanovanjskih stavb, kjer avtorji o stavbah, zgrajenih v obdobju moderne, zapišejo:
»Stavbe, zgrajene do leta 1970, so bile brez toplotne izolacije. Stanovanjske stavbe, zgrajene do sredine sedemdesetih let, so slabše oziroma grajene z enako kvaliteto kot pa tiste stavbe, ki so bile zgrajene do leta 1940. Razlogi za takšno stanje so tako v pomanjkanju kot pri varčevanju z gradbenimi materiali. Nedvomno potrebujejo te stavbe sanacijo, tako gradbeno kot energijsko, poleg tega pa še zamenjavo oken in manjša vzdrževalna dela. Stavbe iz tega obdobja lahko dosežejo z minimalnimi dodatnimi investicijskimi posegi konkretno zmanjšanje potrebne energije za ogrevanje. Pri večnadstropnih stanovanjskih objektih in stavbah so vidne posledice ukrepov učinkovite rabe in obnovljivih virov energije.« (Kovič, Praznik, b. d., str. 3). Na tem mestu je potrebno spomniti na dvoje pozitivnih posledic, ki ju avtorji članka izpostavljajo, a nista podrobneje opredeljeni. Vsaka sanacija nepremičnini ob prodaji dvigne ceno, pa čeprav le za nekaj odstotkov. Prav ta razlika v ceni pa lahko pokrije stroške investicije, ki so bili potrebni za sanacijo. Drugi pozitivni učinek, ki ga ne moremo materialno ovrednotiti, a je zelo pomemben, je dvig kvalitete notranjega okolja.

V preteklosti je že bila izvedena študija (Zbašnik-Senegačnik, Kristl, 2002) energetske prenove povojnih sosesk v Sloveniji, ki zajema nekatere soseske zgrajene med letoma 1945 in 1970, ki so najbolj problematične, saj imajo visoko porabo energije in so slabo vzdrževane. Študija je ugotovila predvsem probleme povezane z gradbeno fizikalnimi značilnostmi stavb, kot so

nezadostna toplotna izolacija, problemi s prekomernim prenosom zvoka v stavbah in nezadostno dnevno osvetljenostjo.

## 5 Primer Nove Gorice

S problematiko ohranjanja modernističnih stavb v Novi Gorici se podrobno ukvarja študija Antonič-Kogoj (2021), zato v nadaljevanju koristimo predvsem zbrane podatke in ugotovitve te študije. Poglavitni namen študije (Antonič-Kogoj, 2021) je ugotoviti, kako se zahteve glede kvalitete bivalnega okolja in varovanja dediščine moderne arhitekture prepletajo v bivalnem prostoru in kako se te težnje odražajo na vzdrževanju in uporabi stanovanjskih prostorov oziroma stavb. Definira glavne probleme, ki pri tem nastajajo, in opozori na potencialne naloge v prihodnosti. V ta namen je bil preučen sklop stanovanjskih blokov v centru Nove Gorice (Kidričeva ulica od številke 29 do 34), zgrajenih med letoma 1949–1951. Bloki so znani tudi pod imenom »ruski bloki«. Najverjetneje so bloki ime dobili po besedi »rusi«, ki v narečju pomeni »rdeči«, in sicer zaradi njihove opečnate barve, preden so jim nadeli fasado. Blokov je šest, v višino pa segajo od 18,2 m do 19,5 m. Pet blokov ima šest etaž, en pa jih ima sedem. Površine parcel znašajo med 1302 $m^2$ in 1612 $m^2$. Površina zemljišča pod stavbo znaša pri vseh stavbah 814 $m^2$. Število stanovanj v posameznem bloku se giblje med 30 in 33, število vseh stanovanj pa znaša 186. Vsak blok ima po tri vhode (a, b in c). Material vertikalne nosilne konstrukcije je pretežno opeka, horizontalna nosilna konstrukcija pa je lesena (Zemljiška knjiga, 2018). Prenove na tem področju pokriva slovenska zakonodaja:

- Gradbeni zakon,
- Odlok o OPN MO Nova Gorica,
- Zakon o varstvu kulturne dediščine.

V registru kulturne dediščine se vodijo evidence stavb in območij, ki so varovana kot kulturno arhitekturna dediščina. Tudi center mesta Nova Gorica z Ravnikarjevimi bloki spada v to območje, a za zdaj še niso varovani kot arhitekturna dediščina, obstaja pa težnja, da se to čim prej uredi. Trenutno so varovani urbanistična zasnova, odprti zeleni medprostori in južne fasade blokov (ZVKD-1, 2018). Po podatkih ZVKD (območna enota Nova Gorica) omejitve veljajo tudi za obulične pozidave, glede katerih že sodelujejo z upravitelji stavb kot tudi z Oddelkom za okolje in prostor na MO Nova Gorica. Pred kratkim je bila v register vpisana stavba mestne občine Nova Gorica, v prihodnosti pa bodo na vrsto prišli tudi »ruski bloki«. Stanovanjske bloke upravlja podjetje DOM Nova Gorica.

## 5.1 Raziskovalna metoda in vzorec

V empiričnem delu študije (Antonič-Kogoj, 2021) je bila uporabljena metoda spraševanja in anketiranja ter ogled na lokaciji. Informacije je bilo mogoče pridobiti pridobili na tri načine:

- ogled obravnavane stavbe in evidentiranje posegov v fasade,
- pogovor smo se z upravljavcem stavb,
- obisk Zavoda za varstvo kulturne dediščine Nova Gorica, Pokrajinskega arhiva Nova Gorica, Znanstveno-raziskovalnega središča Nova Gorica in razgovor,
- anketiranje prebivalcev »ruskih blokov« v Novi Gorici.

Anketiranje je potekalo od 11. 2. 2019 do 28. 2. 2019. S pomočjo upravnika stavb je bila anketa v pisni obliki posredovana stanovalcem tako imenovanih »ruskih blokov«, in sicer na Kidričevi ulici v Novi Gorici, ki zajema šest stanovanjskih blokov od številke 29 do 34. Izpolnjene vprašalnike so stanovalci vrnili v za to namenjeno škatlo, ki je bila postavljena v pritličju vsakega stanovanjskega bloka. Ker v nekaterih stanovanjskih blokih anketnih vprašalnikov ni bilo mogoče razdeliti, je bil uporabljen osebni pristop. Anketa je vsebovala 35 vprašanj. Vprašanja so bila pretežno zaprtega tipa. Anketiranci so lahko izbrali enega ali več že pripravljenih odgovorov. Pri nekaterih vprašanjih so lahko sami dopisali odgovor v rubriko »ostalo«. Trajanje izpolnjevanja ankete je ocenjeno na 10 minut. Anketni vprašalnik je bil namenjen uporabnikom vseh 186 stanovanj.

Tretji sklop študije se nanaša na kvaliteto pogojev bivalnega prostora (prostornost, ustrezna razporeditev prostorov, zvočna in toplotna izolacija, osvetljenost, razgled oziroma pogled skozi okno, toplotno ugodje, kvaliteta notranjega in zunanjega zraka, izpostavljenost stanovanja izpušnim plinom, ustreznost števila parkirnih mest, možnost dostopa do zelenih površin, moteči faktorji, pozitivni faktorji, splošno zadovoljstvo).

Četrti sklop zajema izvedene posege na nepremičnini in stanovanju (dosedanji posegi na fasadi, pomen izgleda fasade, možnosti dodatne pozidave, vpliv na prihodnost urbanistične zasnove mesta).

Peti sklop zajema bivalno okolje in arhitekturno dediščino. Predvsem je izpostavljeno vprašanje kaj so po mnenju anketirancev stavbe arhitekturne dediščine in ali je urbanistična zasnova lahko

del arhitekturne dediščine, ali se stavbe arhitekturne dediščine lahko kadarkoli prenavlja, ali stanujejo v stavbi, ki je del arhitekturne dediščine in ali je smiselno, da stanovanja arhitekturne dediščine dosegajo na trgu višjo ceno od drugih stanovanj.

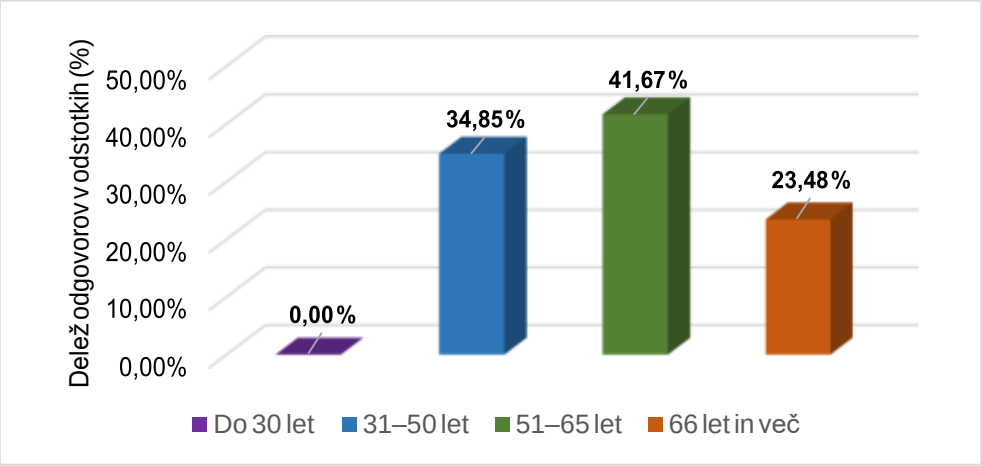
Od 186 poslanih vprašalnikov je bilo vrnjenih 133 vprašalnikov (71,5 %), od tega je bil eden neveljaven. Na anketni vprašalnik je odgovarjalo precej več žensk kot moških. Prevladuje starostna skupina med 51 in 65 let. Večina anketirancev ima poklicno/srednjo šolo, sledijo jim tisti z višjo/visoko izobrazbo. Podrobnosti so prikazane v nadaljevanju (tabela 1).

Tabela 3: Povzetek odgovorov anketirancev glede na spol, starost in izobrazbo

| Spol | % | Starost/leta | % | Izobrazba | % |
|---|---|---|---|---|---|
| **Ž** | **61** | 31–50 | 35 | **poklicna/srednja** | **41** |
| M | 39 | **51–65** | **42** | višja/visoka | 39 |
| | | 65 ali več | 23 | magisterij/doktorat | 20 |

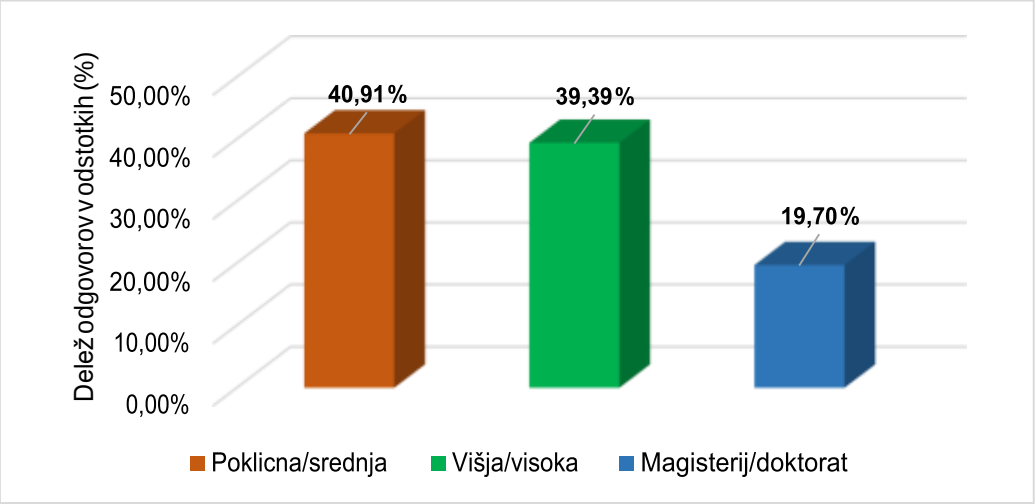
Anketirance je mogoče glede na starost razdeliti v štiri starostne skupine od 30 do 66 let in več. V kategoriji starosti do 30 let ni bilo nobenega anketiranca. Največ anketirancev je pripadalo tretji starostni skupini (51–65 let), in sicer 42 %. Število anketirancev, ki so bili starejši od 66 let, je bilo 23 %. Starostna struktura anketiranih je prikazana v grafikonu 1.

Grafikon1: Sestava anketiranih glede na starost



Poklicno ali srednjo izobrazbo ima 41 % anketirancev, višjo ali visoko izobrazbo ima 39 % anketirancev, 20 % anketirancev pa ima zaključen magisterij ali doktorat. Struktura izobrazbe je razvidna iz grafikona 2.

Grafikon 2: Sestava anketiranih glede na izobrazbo




Anketiranci večinoma živijo v trosobnih stanovanjih (49 %), v štirisobnih jih živi 33 %, v dvosobnih pa 17 %. Če primerjamo rezultate ankete s statističnimi podatki (UIRS, 2021), ugotovimo, da imajo anketiranci precej velika stanovanja, saj meri najmanjše 70 $m^2$. Glede na dejstvo, da v nobenem stanovanju ne živijo več kot štiri osebe, lahko sklepamo, da velikost stanovanja na število oseb, ki v njem prebivajo, zadostuje predpisanim pogojem (Pravilnik o minimalnih tehničnih pogojih glede velikosti stanovanj, 2011). Ta pravi, da je za štiri osebe treba zagotoviti najmanj 69 $m^2$. V »ruskih blokih« je povprečje 33 $m^2$ na osebo, kar je skoraj dvokratnik minimalne predpisane površine. Če za primerjavo pogledamo statistične podatke, ima ravno Goriška regija največjo uporabno površino na osebo (za leto 2018 ta znaša 31,07 $m^2$ na osebo) (UIRS, 2021). Tudi v prejšnjih letih je bila na Goriškem uporabna površina na osebo največja v državi.

Iz odgovorov na vprašanje, koliko ljudi prebiva v stanovanju, je moč razbrati, da se število oseb giblje med ena in štiri. Samih (ena oseba) živi 23 %, v 26 % primerov živita v stanovanju dve osebi, v 21 % primerov tri osebe, največ oseb (30 %) pa živi v skupnosti štirih oseb. To pomeni, da v stanovanjih prevladujejo gospodinjstva z več osebami. Število eno članskih gospodinjstev je v Sloveniji v letu 2011 in 2018 sicer naraslo za skoraj 50 %, število dvo članskih gospodinjstev pa za nekaj več kot 20 % (UIRS, 2021).

Rezultati kažejo, da so v večini primerov stanovalci lastniki stanovanja, v katerem prebivajo. Stanovanje je kupilo 66 % anketirancev, podedovalo pa ga je 19 % anketirancev. V najemnem stanovanju živi 15 % anketirancev. Večina anketirancev je odgovorila, da v stanovanju prebiva več kot 20 let, teh je kar 42 %. Sledijo tisti, ki prebivajo v stanovanju od 10 do 20 let (24 %), do 10 let jih prebiva v stanovanju 16 %, do 5 let pa 17 %. Pri zadnjem vprašanju drugega sklopa je mogoče ugotoviti, da večina anketirancev ne razmišlja o preselitvi drugam. Teh je kar 83 %, preostalih 17 % pa razmišlja o selitvi.

## 5.2 Zadovoljstvo uporabnikov

*Kazalniki splošnega zadovoljstva*

Na splošno lahko rečemo, da obravnavani uporabniki stanovanjskih stavb dojemajo svoje bivalno okolje kot zadovoljivo, v nekaterih elementih pa kot zelo zadovoljivo. Anketiranci so npr. zadovoljni s fizičnim okoljem, kjer živijo, saj ima mesto po njihovem mnenju več pozitivnih kot negativnih značilnosti. Prostor, ki je bil zasnovan pred več desetletji, glede na anketne odgovore še vedno zadovoljuje večino potreb prebivalcev. Prav vsi anketiranci so npr. odgovorili, da imajo ustrezno dostopnost do zunanjih zelenih površin. To kvaliteto je smiselno ohranjati tudi v prihodnje. Tudi bivalna kvaliteta stanovanj je bila v nekaterih elementih ocenjena kot zelo visoka. Zgornjo ugotovitev smo primerjali s podatki Eurostata (2020), glede meritev zadovoljstva z življenjskim okoljem v EU. Na lestvici se med prvimi petimi državami, ki imajo visoko raven zadovoljstva z življenjskim okoljem, nahaja tudi Slovenija, ki zaseda visoko drugo mesto (tabela 2).

Tabela 2: Tabela zadovoljstva z življenjskim okoljem

| Država | Vrednost od 1 do 10 |
|---|---|
| Avstrija | 8,4 |
| **Slovenija** | **7,7** |
| Povprečje EU | 7,3 |
| Italija | 6,0 |
| Bolgarija | 5,2 |

Vir: Zadovoljstvo z življenjskim okoljem. Eurostat, 2020, e-vir

Za primerjavo smo preverili še podatke Eurostata (tabela 3) glede zadovoljstva s stanovanjskimi razmerami. Razvidno je, da se je tudi tu Slovenija uvrstila v sam vrh in je nad evropskim povprečjem.

Tabela 3: Tabela zadovoljstva s stanovanjskimi razmerami

| Država | Vrednost od 1 do 10 |
|---|---|
| **Slovenija** | **7,6** |
| Povprečje EU | 7,5 |
| Italija | 7,2 |
| Bolgarija | 6,0 |

Vir: Zadovoljstvo s stanovanjskimi razmerami, Eurostat, 2020, e-vir.

Iz rezultatov je tudi razvidno, da so anketiranci zadovoljni z velikostjo stanovanj in razporeditvijo prostorov. Večina anketirancev v stanovanjih živi že več desetletij in so večinoma lastniki stanovanj. Rezultati se skladajo z ugotovitvami Golob, Bastič in Pšunder (2016) ki pravijo, da se glavna skupina vplivnih dejavnikov, kot so kraj nepremičnine, lokacija nepremičnine, površina, stanje in starost nepremičnine, tehnologija gradnje, navezuje na prostorske tehnično-funkcionalne, gradbeno-komercialne in ekonomske dejavnike. V tej raziskavi vpliva kraja in lokacije nismo neposredno presojali glede na gradbeno-komercialne in ekonomske dejavnike, iz anketnih odgovorov pa je kljub temu mogoče ugotoviti, da imajo lokacija v centru mesta, velika površina stanovanja , stanje in starost stavb ter tehnologija gradnje precejšen vpliv na zadovoljstvo anketiranih stanovalcev. Podobno lahko ugotovimo tudi v primerjavi z (Grum, Temeljotov Salaj, 2013), ki menijo, da so stanovanjske razmere eden od glavnih parametrov pri določanju bivalnega zadovoljstva. Študija sicer ni podrobno ugotavljala socio-ekonomskih dejavnikov, recimo ekonomskega statusa anketirancev, vendar rezultati nakazujejo, da je dolga doba bivanja v istih stanovanjih vsaj delno tudi odraz zadovoljstva z bivalnim okoljem, glede na visok delež starejše populacije v anketnem vzorcu, pa bi bili vzroki lahko povezani tudi s socialnim ali finančnim položajem.

Po podatkih UIRS (2021) nižje vrednosti kazalnika dosegajo prostorske enote z nižjimi izdatki gospodinjstev za stanovanjske stroške in/ali višjimi skupnimi izdatki, kar lahko nakazuje boljšo kupno moč gospodinjstev. Vidimo, da je goriška med regijami z nizkimi skupnimi izdatki gospodinjstev, čeprav ti v zadnjem odboju naraščajo. Finančni položaj gospodinjstev v Sloveniji se od leta 2011 izboljšuje. Leta 2011 si je 50 % gospodinjstev lahko privoščilo

nepričakovane izdatke, 2019 pa 63%. Tudi primerno ogrevano stanovanje si je leta 2011 lahko privoščilo 94% gospodinjstev, leta 2019 pa 97% gospodinjstev (UIRS, 2021).

*Fizikalni dejavniki bivalnega okolja*

Anketa je pokazala tudi na nekatere pomembne fizikalne dejavnike okolja. Velik delež anketiranih je izrazil zadovoljstvo z osvetlitvijo stanovanja z dnevno svetlobo, z osončenostjo, s pogledom in razgledom iz stanovanja ter s kvaliteto zraka v stanovanju. Nezadovoljstvo anketirancev se je izkazalo predvsem pri toplotnem ugodju v stanovanjih (ogrevanje, hlajenje), hrupu (zunanji, notranji), kvaliteti zunanjega zraka, ter nekaterih infrastrukturnih elementih, npr. parkirni ureditvi in odsotnosti dvigal. Ob tem je potrebno opozoriti, da se subjektivni oceni anketiranih glede kvalitete zraka v stanovanjih in kvalitete zunanjega zraka ne skladata, saj so anketiranci izkazali bistveno višje zadovoljstvo s ocenjeno kvaliteto zraka v stanovanjih (75 % zadovoljnih) glede na ocenjeno kvaliteto zunanjega zraka (53 % nezadovoljnih). Percepcija kvalitete zraka v stanovanjih se je izkazala za izrazito individualno. Ker se stanovanja zračijo na naraven način, pri zračenju zunanji zrak vstopa v notranje prostore in vpliva tudi na kvaliteto notranjega zraka. Statistični podatki za leto 2019 sicer kažejo, da je povprečna letna vrednost PM10 za novo gorico 20 $\mu g/m^3$, medtem ko je dopustna mejna vrednost prašnih delcev PM10 –v Sloveniji, ki jo določa Ministrstvo za okolje in prostor, pri 24-urni koncentraciji 50 $\mu g/m^3$, letna povprečna mejna vrednost pa je 40 $\mu g/m^3$. Dnevna mejna vrednost je lahko presežena 35-krat v koledarskem letu. Povprečne mesečne ravni za Novo Gorico so različne, najvišja v letu 2019 je bila izmerjena v februarju in je znašala 37 $\mu g/m^3$. V letu 2019 je bila mejna opozorilna vrednost za ozon v Novi Gorici to presežena 5-krat (MOP, 2020).

Velik delež anketirancev je nezadovoljen tudi s toplotnim ugodjem v stanovanju (skoraj polovica anketirancev omenja probleme s prehladnimi stanovanji pozimi in pregrevanjem poleti). Ker so bile stavbe zgrajene pred sedmimi desetletji, gre vzroke iskati predvsem v stavbnem ovoju, ki ni toplotno izoliran, in v neprimernem ogrevalnem sistemu. K uhajanju toplote pozimi zelo verjetno prispeva tudi stavbno pohištvo, ki ni zrakotesno. Predhodne raziskave, npr. Grum in Temeljotov Salaj (2013) sta presojala pričakovanja potencialnih kupcev stanovanjskih nepremičnin. Ugotovila sta, da sta centralno ogrevanje in spletni dostop določenim kategorijam kupcev najpomembnejša. Zato intervencije v stavbni ovoj niso nepričakovane. Glede na zaznano pogostnost posegov v stavbno pohištvo je smiselna domneva,

da so stanovalci probleme s toplotnim ugodjem reševali parcialno z menjavo dotrajanih oken, nameščanjem zunanjih rolet in lokalnih hladilnih naprav ter tudi zastekljevanjem balkonov.

*Posegi v stavbni ovoj*

Posegi na nepremičnini (npr. zamenjava oken, zasteklitev balkonov) so bili glede na anketne odgovore opravljeni pri 42 % anketirancev. Ob ogledu nepremičnin na kraju je bilo ugotovljeno bistveno več posegov, saj je prvotnih oken, ki še čakajo na obnovo, le še za vzorec. Pri posegih v stavbni ovoj tako ugotavljamo velik delež zastekljenih balkonov in zamenjanih oken. Ker vzrokov za te posege raziskava ni podrobneje ugotavljala ni ker tudi ni na voljo zanesljivih podatkov o strukturi stavbnega ovoja obravnavanih objektov, si pri analizi odgovorov, ki se nanašajo na zvočno izolirnost, dnevno osvetljenost in osončenost, pomagamo z ugotovitvami študije, ki je obravnavala povojno večstanovanjsko gradnjo v Ljubljani (območje Rakovnika, Litostrojske bloke in Savsko kolonijo) (Zbašnik-Senegačnik, Kristl, 2002). Študija je ugotovila, da so večstanovanjske stavbe, ki so bile grajene v povojnem obdobju, zadostile takratnim predpisom, današnjih zahtev pa več ne dosegajo. Študija ugotavlja obširno zastekljevanje balkonov z namenom pridobivanja sončne toplote pozimi, ki je neučinkovita, saj se vrednost toplotnih dobitkov približuje vrednosti toplotnih izgub. V poletnih mesecih je prostor z zastekljenim balkonom zaradi pregrevanja slabo izkoriščen. Lesena okna prispevajo k toplotnim izgubam, saj so karakteristike stekla, okvirja in zrakotesnosti za današnja merila nezadostne. V študiji Rakovnik (Zbašnik Senegačnik, Kristl, 2002) je tudi izpostavljeno, da se zastekljevanje balkonov izkaže za smiselno takrat, ko stanovalci s takim posegom pridobijo dodaten uporaben prostor. Glede na rezultate študije sklepamo, da pomanjkanje prostora ne more biti vzrok za zasteklitve balkonov, saj so stanovanja večinoma precej prostorna. V povezavi z odgovori glede toplotnega ugodja lahko iščemo vzrok za zastekljevanje balkonov v zmanjševanju toplotnih izgub pozimi.

Slika 1: Pogled na fasado enega od Ruskih blokov, Nova gorica

Vir: lastni arhiv.

Tako kot drugod, tudi v Novi Gorici prihaja do največ nedorečenih posegov prav pri obnovi fasad (Cankarjeva ulica, Nebotičnik, Ul. Gradnikove brigade). V primeru »ruskih blokov« je iz stanja na stavbah sklepati, da so se lastniki pri posegih večinoma odločali svojevoljno, saj so posegi potekali v različnih časovnih obdobjih in z namestitvijo različnih stavbnih elementov (slika 1). To ugotovitev potrjuje tudi mnenje arhitekta, urbanista in dolgoletnega načelnika Oddelka za okolje na Mestni občini Nova Gorica ter nekdanjega državnega sekretarja na Ministrstvu za okolje in prostor, Nika Jurce (Kosovel, 2014) ki pavi, da satelitski krožniki in klimatske naprave postajajo sestavni del fasade in jih stanovalci nameščajo po svoji presoji. Tudi on opaža, da se lesena polkna nadomeščajo s plastičnimi roletami. Jurca sicer pohvali primer prenove fasad na Ledinah (ki so novejše in ne sodijo v obdobje moderne), kjer so ob prenovi ohranili izvirno barvno shemo. Kot neuspešen primer prenove lahko navedemo Nebotičnik v Novi Gorici, kjer je prvotno belo fasado zamenjala oranžna.

*Stavbna infrastruktura*

Grum in Temeljotov Salaj (2013) sta presojala pričakovanja potencialnih kupcev stanovanjskih nepremičnin. Poleg drugih dejavnikov sta kot pomembne izpostavila možnost parkiranja, prometno povezavo, velikost, svetlost, razgled, mirnost lokacije in zunanje površine. V naši raziskavi so te ugotovitve potrjene v delu glede dostopnosti zelenih javnih površin, mirnega okolja, parkiranja velikosti osvetljenosti, razgleda v zeleno okolje in mirnosti lokacije.

Predvsem so anketiranci v precej velikem deležu izpostavili problem odsotnosti dvigal za prevoz oseb. Glede na starostno strukturo anketirancev (velik delež anketirancev v starosti nad 65 let) odgovori niso nepričakovani, ne moremo pa zanemariti tudi splošnega trenda staranja populacije.

Obravnavani stanovanjski bloki v Novi Gorici so bili zgrajeni v času, ko je bilo število avtomobilov bistveno manjše, veljali pa so tudi drugačni predpisi glede števila parkirnih mest na posamezno stanovanje. Na spletni strani Javnega vpogleda v nepremičnine (2021) smo kot vzorec obravnavali stanovanjski blok s 33 stanovanji, ki se nahaja na Kidričevi ulici 34 v Novi Gorici. Od tega ima zagotovljena parkirna mesta na prostem 19 stanovanj, tri stanovanja imajo garažo, 11 stanovanj pa parkirnega mesta nima zagotovljenega. To se je odrazilo tudi v anketi, kjer je večina anketirancev odgovorila, da je parkirnih mest premalo. Podatki SURS-a sicer pokažejo, da je število avtomobilov v Goriški regiji višje od slovenskega povprečja (SURS, 2018). Glede na veljavne predpise, ugotavljamo, da bi anketiranci morali imeti vsaj dve parkirni mesti na stanovanje, saj so vsa obravnavana stanovanja večja od 70 $m^2$. Dejansko število parkirnih mest pa je bistveno manjše.

*Zaščita stavbne dediščine*

Trenutno obravnavane stavbe, še niso zaščitene kot arhitekturna dediščina, je pa zaščiteno območje, kjer se varuje urbanistična zasnova, odprti zeleni medprostori in južne fasade. Več kot polovica anketirancev se ne zaveda, da stanuje v stavbi, ki je del zaščitenega arhitekturnega prostora. Posledice tega so vidne v posegih, ki so že bili izvedeni na stavbah (menjava oken, zasteklitev balkonov, nameščanje zunanjih klimatskih enot). Podobno ugotavlja tudi prispevek Žikićeve »Fokus na modernizmu, Arhitektura Novega Sada 1950–1970« (2018), ki govori o pomembnih stavbah iz časa modernizma, ki pa so jih tako strokovnjaki kot javnost dolgo zanemarjali. Arhitekturo so prepustili zobu časa, pri obnavljanju pa jih še vedno obravnavajo kot nove. Ugotovitve te študije se skladajo tudi s prispevkom »Pozabljena dediščina moderne«, kjer Humar (2016) opisuje primer obnove objekta Salon Meblo na Bevkovem trgu v Novi Gorici. Potrebnih je bilo veliko kompromisov med lastniki prostorov, izvajalci in upravnikom stavbe. Arhitekt Cingerle (2010), ki je sodeloval pri prenovi, je opozoril, da so bile finančne možnosti prenove zelo omejene, zato so se odločili za minimalne posege. Kljub temu so objekt povrnili v stanje, ki je podobno njegovi prvotni podobi. Spodbudna je ugotovitev, da skoraj polovica anketirancev meni, da stavb arhitekturne dediščine ni mogoče kadarkoli prenavljati in

da je pri tem potreben nadzor strokovnih institucij. Podoben delež odgovorov smo ugotovili tudi pri opredelitvi anketirancev o tem, ali je urbanistična zasnova mesta (razporeditev stavb v prostoru, ulice, trgi) lahko del arhitekturne dediščine. Skoraj polovica jih meni, da so to lahko vse urbane zasnove, če imajo določeno likovno, kulturno in zgodovinsko vrednost. V študiji ugotavljamo precejšen razkorak med deklarirano naravnanostjo in dejanskim delovanjem, ki je bila ugotovljena tudi na drugih področjih. Recimo, Špes (2008) ugotavlja, da za Slovenijo na splošno velja relativno dobra deklarativna ekološka ozaveščenost, bolj problematičen pa je velik razkorak z okoljskim ravnanjem in relativno slabim dejanskim okoljskim obnašanjem. Pomanjkanje zavedanja o kvalitetah arhitekturne dediščine (in arhitekture na splošno) ima lahko pri prenavljanju stavb v mestu Nova Gorica trajne posledice. Ugotovitev glede trajnih posledic pri prenavljanju stavb potrjuje dejansko stanje in odločanje lastnikov pri izbiri materialov, izvedbi posegov glede na trenutno ponudbo in po lastni presoji.

*Priložnosti za soodločanje*

Na podlagi rezultatov ugotavljamo, da večina anketirancev meni, da ne more soodločati o razvoju mesta, kar ne spodbuja aktivnega odnosa do kvalitete bivalnega okolja. Pri anketirancih sicer obstaja določena zavest, da se je glede posegov na stavbni dediščini potrebno posvetovati z ustreznimi institucijami, kar je dobro izhodišče, vendar ugotavljamo, da praksa izkazuje bistveno drugačno sliko. Ob vprašanjih, kako pomemben je za uporabnike izgled stavbe (fasade), smo ugotovili, da približno polovica anketirancev meni, da je izgled stavbe nepomemben ali da o izgledu fasade odločajo drugi ter da na to ne morejo vplivati. Tudi druge študije ugotavljajo da izzivi, povezani s pomanjkanjem socialne kohezije, motivacije, znanja in komunikacije, predstavljajo velike ovire za izvajanje izvedljivih ukrepov obnove (Senior idr., 2021). Še naprej je treba vzpostavljati smiseln regulativni okvir in zagotavljati sprejemljive rešitve od zgoraj navzdol, vendar je treba uporabiti tudi mehkejše pristope od spodaj navzgor. Za učinkovitejše in okolju prijazne prakse je treba obstoječe kulturne in gospodarske dejavnike povezati s trajnostnimi rešitvami. Predvsem pa je treba zagotoviti dovolj informacij o izvedljivih rešitvah, možnostih financiranja in pričakovanih koristih. Špes (2008) ugotavlja, da je ena od ključnih nalog »trajnostne družbe« dostop do objektivnih informacij in zagotavlja udeležbo javnosti pri odločanju. S tem pomaga spreminjati tudi vzorce navad, ki imajo negativne vplive na okolje. V konkretnem primeru v prihodnosti vidimo priložnost za izboljšave predvsem v medsebojnem povezovanju in sodelovanju upravljavcev stanovanjskih blokov, ZVKD, mestne občine in lastnikov ter v dvigu zavedanja o kvalitetah grajenega okolja,

v katerem živijo. Izzivi trajnostnega razvoja Nove Gorice so lahko tudi priložnost za nove pristope pri prenovah obstoječih stavb.

# 6 Sklep

Problematika, ki se je pokazala v raziskavi, odpira vpogled v razumevanje trenutnega stanja in hkrati nakazuje potrebne ukrepe in ustrezne pristope za ohranjanje modernističnih kvalitet mesta Nova Gorica.

*Kontekst lokacije in kulturnega okolja:* Mila lokalna klima ima za posledico nižje vzdrževalne stroške na stanovanje od povprečja v Sloveniji, ravno tako so stanovanja za slovenske razmere precej velika (povprečje je 33m$^2$ na osebo). To ugodno vpliva na naklonjenost anketiranih v obstoječem okolju, saj neugodnih vplivov zelo verjetno ne občutijo enako intenzivno kot prebivalci v celinskem delu Slovenije. Uporabniki stanovanjskih stavb v centru mesta Nova Gorica (»ruski bloki«) dojemajo svoje bivalno okolje kot zadovoljivo, v nekaterih elementih pa kot zelo zadovoljivo. Večina je mnenja, da ima mesto Nova Gorica več pozitivnih kot negativnih značilnosti. Tudi bivalna kvaliteta stanovanj je v nekaterih elementih zelo visoka, predvsem osvetljenost in osončenost ter dostop do zelenih površin sta bila ocenjena zelo pozitivno. Starostna in izobrazbena struktura anketirancev sta precej enotni, prevladuje srednja izobrazba in starejša populacija, ki je zaradi dolgotrajnega bivanja v stavbah vzpostavila tesno navezanost na lokacijo. Anketa je pokazala tudi na nekatere pomanjkljivosti, ki jih bo treba v prihodnosti nasloviti, predvsem so izpostavljeni neprimerno toplotno ugodje, težja dostopnost višjih nadstropij in pomanjkljiva ureditev stoječega prometa. Nekatere pomanjkljivosti so moteče predvsem za starejšo populacijo, ki je težje mobilna. Moteči dejavniki se bodo zaradi globalnega višanja temperatur v prihodnosti hitro poslabševali, kar lahko povzroči spremembe v odnosu do obravnavanih nepremičnin.

*Lokalne značilnosti in vpliv na nenadzorovane prenove stavb:* Predhodne raziskave so pokazale, da največji delež prenov v stanovanjskem sektorju niso ciljne energetske prenove temveč se te izvedejo v kombinaciji z drugimi posegi. Predvsem se prenove stavb izvajajo takrat, ko so nujne (popravila, zamenjave, tekoče vzdrževanje). To je bilo posredno potrjeno tudi s to raziskavo. Čeprav strokovnjaki čedalje bolj izpostavljajo potrebo po oprijemljivih ukrepih za blažitev podnebnih sprememb, je javnost le na splošno naklonjena prilagoditvenim procesom. Tudi v tej raziskavi anketiranci na načelni ravni podpirajo zaščito arhitekturne

dediščine in jo večinoma pravilno opredelijo (v stavbno dediščino uvrstijo tudi stavbe iz časa modernizma), vendar se premalo zavedajo arhitekturnih kvalitet stavb in prostora, v katerih živijo. Analiza obstoječega stanja pokaže, da izvedeni posegi večinoma niso v skladu z načeli varovanja arhitekturne dediščine. Preseneča tudi ravnodušen odnos znatnega deleža anketirancev do zunanjega izgleda stavb v katerih živijo. Brezbrižen odnos in neurejenost rezultirata v spremenjenem izgledu ali celo degradaciji stavbne dediščine – opazimo lahko tipičen vzorec postopnega spreminjanja izgleda stavb zaradi nenadzorovanih renovacij v lastni režiji. Opozoriti je potrebno tudi na vprašljivo kvaliteto izvedb in nezadostno končno učinkovitost ukrepov, ko govorimo o porabi energije in bivalnem ugodju.

*Kako dobro poznamo tehnične, ekonomske, socialne in vedenjske vzorce:* Kot vidimo, ukrepi na generalni rani niso dovolj učinkoviti in bi jih bilo smiselno prilagajati posameznim skupinam uporabnikov glede na tip stavbe in na socio-kulturni položaj, za kar pa je potrebna natančna opredelitev ciljnih skupin. Tehnične, ekonomske in socialne in vedenjske vzorce poznamo parcialno, dobro so le vidne njihove posledice. Regulatorne in finančne izzive trajnostne prenove zaščitenih stavb poznamo nekoliko bolje, saj je bilo na to temo izvedenih že nekaj študij, ki so tudi opozorile na določene izzive. V prihodnosti vidimo priložnost za izboljšave predvsem v medsebojnem povezovanju in sodelovanju upravljavcev stanovanjskih blokov, ZVKD, občin in lastnikov nepremičnin ter v dvigu zavedanja o kvalitetah grajenega okolja, v katerem živijo.

*Kako lahko uporabimo holistične pristope:* Podnebne spremembe bodo neizogibno vplivale na trenutni življenjski slog in kakovost življenja. Zato je treba okrepiti ozaveščanje in informiranje o prilagoditvenih strategijah ter o vplivu podnebnih sprememb na življenje in družbo, kot tudi predstaviti možnosti izhodnih strategij. Ob tem postaja vse bolj jasno, da bodo na posameznih področjih potrebne precejšnje spremembe v pristopu. Rezultati raziskave kažejo, da socio-kulturne ovire vsekakor obstajajo. Predvsem so pereči nezadostna obveščenost, pomanjkljiv odnos do grajenega okolja in velika kompleksnost organizirane prenove. V našem primeru se je izkazalo, da so neobveščeni predvsem starejši prebivalci in da bi bilo kampanje smiselno usmeriti nanje, saj so v precejšnjem deležu ravno oni lastniki stanovanj. Kot povode za prenove bi bilo smiselno bolj poudariti pozitivne finančne učinke in aspekte povezane z zdravjem in udobjem.

Raziskava je odprla številna zanimiva vprašanja, zato bo na tem področju potrebnega še veliko nadaljnjega dela. Izzivi trajnostnega razvoja Nove Gorice so lahko tudi priložnost za nove pristope pri prenovah obstoječih stavb.

## 7 Literatura in viri


Agencija Republike Slovenije za okolje. (2020). Število preseganj dnevne mejne koncentracije $PM_{10}$ v letu 2020. URL: http://www.arso.gov.si/zrak/kakovost%20zraka/podatki/preseganja_pm10.html, 11. 2. 2020.

Andersen, R., Bjerregaard, Jensen, L., Ryberg, M. (2021). Using digitized public accessible building data to assess the renovation potential of existing building stock in a sustainable urban perspective. *Sustainable Cities and Society* 75, 103303.

Antonič-Kogoj, M. (2021). Uporabniki in zavedanje o arhitekturni dediščini moderne v Novi Gorici, magistrsko delo, Nova univerza, Evropska pravna fakulteta, Nova Gorica.

Arhitekturna politika Slovenije: Arhitektura za ljudi. (2017). Ljubljana: Vlada Republike Slovenije. URL: http://mk.arhiv-spletisc.gov.si/fileadmin/mk.gov.si/pageuploads/Ministrstvo/Zakonodaja/Strategije/AP_250817.pdf, 20. 11. 2018.

Azhari, N. F. N., Mohamed, E. (2012). Public perception: Heritage building conservation in Kuala Lumpur. *Procedia – Social and Behavioral Sciences* 50, 271–279. URL: https://www.researchgate.net/publication/257716076_Public_Perception_Heritage_Building_Conservation_in_Kuala_Lumpur/fulltext/026e53a20cf26271f589db34/Public-Perception-Heritage-Building-Conservation-in-Kuala-Lumpur.pdf, 10. 10. 2020.

Caputo, P., Pasetti, G. (2017). GIS tools towards a renovation of the building heritage. *Energy Procedia* 133, 435-443.

Caro, R., Sendra, J.J., Muñoz González, C.M. (2021). The role of hybrid systems in the decarbonization of residential heritage buildings in mediterranean climate. A case study in Seville, Spain. *Energy and Buildings* 250 (1), 111302.

Cingerle, A. (2010). Nova Gorica – mesto brez identitete. Dialogi, let. 46, št. 7–8, str. 84–98.

Dimenzioniranje števila parkirnih mest. (2018). Uradni list RS, št. 13/18.

Direktiva 2010/31/EU (EPBD 2010) Evropskega parlamenta in Sveta z dne 19. maja 2010 o energetski učinkovitosti stavb (prenovitev). Uradni list Evropske unije L153, 18. 6. 2010, 13–35.

Direktiva 2018/844/EU (EPBD 2018) Evropskega parlamenta in Sveta z dne 30. maja 2018 o spremembi Direktive 2010/31/EU o energetski učinkovitosti stavb in Direktive 2012/27/EU o energetski učinkovitosti. Uradni list Evropske unije L 156/75, 19. 6. 2018, 75–91.

Documentation and Conservation of Modern Movement (DOCOMOMO). (2020). Docomomo International. URL: https://www.docomomo.com/, 11. 3. 2020.

Doktrina 2 Mednarodne listine in dokumenti ICOMOS. (2014). International Council on Monuments and Sites (Paris), 2014. Ljubljana: Združenje za ohranjanje spomenikov in spomeniških območij. URL: http://www.icomos.si/files/2015/06/doktrina2.pdf, 22. 10. 2018.

Dolgoročna strategija energetske prenove stavb do leta 2050. (2021). Ljubljana: Vlada Republike Slovenije. URL: https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/dseps/dseps_2050_final.pdf, 13. 5. 2021.

Dolgoročna strategija energetske prenove stavb do leta 2050. (2021). Ljubljana: Vlada Republike Slovenije. URL: https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/dseps/dseps_2050_final.pdf, 13. 5. 2021.

Dolgoročna strategija za spodbujanje naložb energetske prenove stavb. (2015). Ljubljana: Vlada RS. URL: https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/dolgorocna-strategijaza-spodbujanje-nalozb-energetske-prenove-stavb, 6. 6. 2020.

Dolšak, J., Hrovatin, N., Zorić, J. (2020). Factors impacting energy-efficient retrofits in the residential sector: The effectiveness of the Slovenian subsidy program. *Energy & Buildings* 229, 110501.

Evropski zeleni dogovor (COM 640) (2019). Bruselj: Sporočilo komisije COM 640 11. 12. 2019.

Gjerek, M., Koleša, T. Logar, M., Matavž, L., Murovec, M., Rus, M., Žabkar, R. (2018). Kakovost zraka v Sloveniji. Ljubljana: Agencija Republike Slovenije za okolje. URL: https://www.arso.gov.si/zrak/kakovost%20zraka/poro%C4%8Dila%20in%20publikacije/Letno_porocilo_2017_kakovost_zraka_fin.pdf, 10. 8. 2020.

Golob, K., Bastič, M., Pšunder, I. (2016). Maribor: Analysis of Impact Factors on the Real Estate Market: Case Slovenia. University of Maribor.

Gradbeni zakon (GZ). (2021). Uradni list RS, št. 61/17, 72/17 – popr., 65/20, 15/21 – ZDUOP in 199/21 – GZ-1). URL: http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO7108, 24.1.2022

Gremmelspacher, J.M., Campamà Pizarro, R., Johansson, D. (2021). Historical building renovation and PV optimisation towards NetZEB in Sweden, *Solar Energy 223*, 248-260.

Grum, B., Temeljotov Salaj, A. (2013). The comparison of expressed satisfaction and expectations of potential real estate buyers in Slovenia and Japan. *Facilities*, 31(1-2), 6-23.

Hermelink, A., Schimschar, S., Offermann, M., John, A.; Reiser, M., Pohl, A., Grözinger, J. (2019). Cologne: *Comprehensive Study of Building Energy Renovation Activities and the Uptake of Nearly Zero-Energy Buildings in the EU*. European Commission – final report. URL: https://ec.europa.eu/energy/sites/ener/files/documents/1.final_report.pdf, 12. 5. 2021.

Humar, V. (2016). Pozabljena dediščina moderne. *Primorske novice*, 9. 1. 2016. URL: http://www.primorske.si/plus/7--val/pozabljena-dediscina-moderne, 2. 12. 2018.

Ipsos. (2019). Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU, Final report, European Union.

Javni vpogled v nepremičnine. URL: http://prostor3.gov.si/javni/login.jsp?jezik=sl, 12. 5. 2021.

Johansson, P., Femenías, P., Wahlgren, P. (2016). Pending for Renovations: Understanding the Conditions of the Multi-family Housing Stock from before 1945. *Energy Procedia* 96, 170 – 179.

Kosovel, M. (2014). Ko stavbe izgubijo svoj karakter, začneta cenenost in banalnost prevladovati tudi v odnosu do okolja. Intervju z Nikom Jurco. *Razpotja*. URL: http://old.razpotja.si/ko-stavbe-izgubijo-svoj-karakter-zacneta-cenenost-in-banalnost-prevladovati-tudi-v-odnosu-do-okolja-intervju-z-nikom-jurco/, 12. 1. 2020.

Kovič, S., Praznik, M. (B. d.) Sanacija večstanovanjskih stavb v pasivnem in nizkoenergijskem standardu. Ljubljana: Gradbeni inštitut ZRMK. URL: http://www.lesena-gradnja.si/html/img/pool/SANACIJA_STANOVANJSKIH_STAVB.pdf, 11. 11. 2018.

Kristl, Ž., Senior, C., Temeljotov Salaj, A. (2020). Ključni izzivi prilagajanja podnebnim spremembam v gradbenem sektorju**.** *Urbani izziv* 31 (1), 40-50. DOI: 10.5379/urbani-izziv-2020-31-01-00410.5379/urbani-izziv-en-2020-31-01-004.

Kutut, V. (2017). Specific Characteristics of Real Estate Development In Cultural Heritage Areas. *Procedia Engineering* 208, 69–75.

Living Arrangements of older persons: Critical issues and policy responses. (2001). New York: Population Bulletin of the United Nations. Special Issue No. 42/43 2001. United Nations, Population Division-Department of economic and social affairs. 392 str.

Kakovost zraka – napovedi in tekoči podatki. (2020). Ministrstvo za okolje in prostor RS. URL: http://www.arso.gov.si/zrak/kakovost%20zraka/podatki/, 20. 2. 2020.

Navodila in tehnične usmeritve za energetsko prenovo javnih stavb. (2018). Ministrstvo za infrastrukturo Republike Slovenije. URL: http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/ntueps_feb2018.pdf, 16. 11. 2018.

New European Bahaus-Initiative. (2021). Brusels: European Commission. *Why the New European Bauhaus (NEB)? What Are the Next Concrete Steps?*

Odlok o Občinskem prostorskem načrtu Mestne občine Nova Gorica (2017). Nova Gorica: Ur. l. RS, št. 13/2018. str. 1971. URL: https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2018-01-0573/odlok-o-obcinskem-prostorskem-nacrtu-mestne-obcine-nova-gorica-uradno-precisceno-besedilo, 30. 4. 2020.

Oživljena moderna. (2014). Ljubljana: Ministrstvo za kulturo Republike Slovenije. URL: http://www.drustvo-dal.si/pdf/Ozivljena_Moderna41.pdf, 23. 11. 2018.

Pravilnik o upravljanju večstanovanjskih stavb. (2013). Uradni list RS, št. 60/09, 87/11 in 85/13. URL: http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV8674, 11. 12. 2018.

Pravilnik o minimalnih tehničnih zahtevah za graditev stanovanjskih stavb in stanovanj. (2011). Uradni list RS, št. 1/11, 61/17. URL: http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV10213, 30. 4. 2020.

Primerjam.si. Informa studio, d.o.o.(2021). URL: https://www.primerjam.si/, 12. 5. 2021.

Ravnikar, V., Zorec, M., Gregorič, T., Koselj, N. (2000). Ljubljana: Evidenca in valorizacija objektov slovenske moderne arhitekture med leti 1945–1970. Aplikativna raziskava. Ljubljana: Fakulteta za arhitekturo. URL: http://www.evidenca.org/evidenca_1945-70.pdf, 10. 12. 2018.

Renovation Wave for Europe (2020). Brussels: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - greening our buildings, creating jobs, improving lives COM(2020) 662 final, 14.10.2020.

Requena-Ruiz, I. (2016). Thermal comfort in twentieth-century architectural heritage: Two houses of Le Corbusier and André Wogenscky. *Frontiers of Architectural Research* 5 (2), 157–170. URL: https://www.sciencedirect.com/science/article/pii/S2095263516000170, 22. 12. 2018.

Senior, C., Temeljotov Salaj, A., Vukmirović, M., Jowkar, M., Kristl, Ž. (2021). The spirit of time: the art of self-renovation to improve indoor environment in cultural heritage buildings. *Energies* 2012, 14 (13), 1-27. URL: https://www.mdpi.com/1996-1073/14/13/4056, DOI: 10.3390/en14134056.

Silvero, F., Montelpare S., Varum, H. (2018). Energy retrofit solutions for heritage buildings located in hot-humid climates. *Procedia Structural Integrity* 30 (11), 52-59.

Statistični urad RS (SURS) (2019). V 2018 je bilo Sloveniji registriranih 1.143.150 osebnih avtomobilov. URL: https://www.stat.si/StatWeb/News/Index/8124, 24. 2. 2020.

Špes, M. (2008). Pomen okoljske ozaveščenosti in sodelovanja javnosti za trajnostni razvoj. Dela 29, str. 49–62. URL: http://www.dlib.si/stream/URN:NBN:SI:DOC-VM2Z7T79/b86b57f7-f64b-4314- af88-5cd12acc815d/PDF, 11. 11. 2019.

Temeljotov Salaj, A., Lindkvist, C. (2020). Urban facility management. *Facilities* 39 (7/8), 525–537. URL: https://doi.org/10.1108/F-06-2020-0078, 22. 12. 2021.

Tomšič, M., Mirtič, M., Šijanec Zavrl, M., Rakušček, A. (2017). Energy Renovation of Cultural Heritage Buildings »by the Book«. *Procedia Environmental Sciences* 38, 212–219. URL: https://reader.elsevier.com/reader/sd/pii/S1878029617301123?token=D3BCA04536CDEDF780D001D18123BEDA9C54EA0704D7944969998F649B15964A379453DBA239DCBE2FE3DE883A0BC93B, 15. 11. 2018.

Towards an integrated approach to cultural heritage for Europe. (2014). Brussels: Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions COM 477, 22. 7. 2014.

Ugarte, S.; Van Der Ree, B.; Voogt, M.; Eichhammer, W.; Ordoñez, J.A.; Reute, M.; Schlomann, B.; Llore, P., Villafáfila, R. (2016). Brussels: *Policy Department: Economic and Scientific Policy-Energy Efficiency for Low-Income Households*. European Parliament.

Urbanistični inštitut RS (2021). Poročilo o prostorskem razvoju 2021- pregled kazalnikov, Priloga 2. URL: http://www.pis.gov.si/doc/POROCILO_2021.pdf, 24.1.2022.

Val prenove za Evropo. (2020) Sporočilo Komisije Evropskemu parlamentu, Svetu, Evropskemu Ekonomsko-socialnemu odboru in Odboru regij. Evropska komisija, 2020. URL: https://eur-lex.europa.eu/legal-content/SL/TXT/HTML/?uri=CELEX:52020DC0662&from=EN., 12. 5. 2021.

Vendramin, M. idr. (2016). Smernice energetske prenove stavb arhitekturne dediščine. Ljubljana: Ministrstvo za infrastrukturo Republike Slovenije. URL: http://www.mk.gov.si/fileadmin/mk.gov.si/pageuploads/Ministrstvo/Fotogalerija/2017/5-maj/smernice_kd-final.pdf, 22. 11. 2018.

Vertot, N. (2010). Ljubljana: Starejše prebivalstvo v Sloveniji, SURS. URL: https://www.stat.si/doc/StarejsePrebivalstvo.pdf).

Zadovoljstvo s stanovanjskimi razmerami. (2020). Eurostat URL: https://www.stat.si/qol/index_sl.html, 20. 2. 2020.

Zadovoljstvo z življenjskim okoljem. (2020). Eurostat, 2020. URL: https://www.stat.si/qol/index_sl.html, 20. 2. 2020.

Zakon o varstvu kulturne dediščine (ZVKD-1) (2018). Uradni list RS, št. 16/08, 123/08, 8/11 – ORZVKD39, 90/12, 111/13, 32/16 in 21/18 – ZNOrg). URL: https://www.zvkds.si/sl/knjiznica/zakon-o-varstvu-kulturne-dediscine-zvkd-1, 30. 4. 2020.

Zancanella, P., Bertoldi, P., Boza-Kiss, B. (2018). Energy efficiency, the value of buildings and the payment default risk, JRC science and policy report.

Zbašnik-Senegačnik, M., Kristl, Ž. (2002). Energetska prenova povojnih večstanovanjskih zgradb: kriterij presoje - energetska prenova - smotrnost posegov. V: Prenova povojnih stanovanjskih sosesk : [večstanovanjsko območje na Rakovniku]. / ur. Alenka Fikfak, Martina Zbašnik-Senegačnik. Ljubljana: Fakulteta za arhitekturo, str. 12–14.

Zemljiška knjiga. (2018). Vrhovno sodišče RS. URL: http://www.sodisce.si/javne_knjige/zemljiska_knjiga/, 10. 10. 2020.

Žikić, B. (2018). Arhitektura jugoslovanskega modernizma – o času, tehnologiji, umetnosti in skupnih idealih. RTV SLO, 1. 10. 2018. URL: https://www.rtvslo.si/kultura/drugo/arhitektura-jugoslovanskega-modernizma-o-casu-tehnologiji-umetnosti-in-skupnih-idealih/467576, 23. 4. 2021.

**ZAHVALA**

Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: *Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva*; št. projekta J5-3112.

# Analiza vplivnih dejavnikov na cene nepremičnin

**Ajda Fošner**

*Nova univerza, Evropska pravna fakulteta, Slovenija, Ljubljana*

*ajda.fosner@epf.nova-uni.si*

**Niko Maučec**

*Nova univerza, Evropska pravna fakulteta, Slovenija, Ljubljana*

**Povzetek:**

Konec leta 2008 se je finančna kriza, ki jo je povzročil zlom nepremičninskega trga v ZDA, razširila po vsem svetu in v veliki meri vplivala na razvoj gospodarstva. Krizo je sprožil propad hipotekarnega trga posojil v ZDA, zlom pa je prizadel tudi evropske države vključno s Slovenijo. Finančna kriza je povzročila velik padec cen nepremičnin, nato pa je trajalo precej časa, da so se cene ustalile. Šele zadnjih nekaj let spet opažamo njihovo rast. Na oblikovanje cen nepremičnin vplivajo različni dejavniki, mi smo v raziskavo vključili tri bistvene: BDP na prebivalca, obrestne mere in inflacija. S pomočjo regresijskega modela smo dokazali, da BDP na prebivalca ter obrestne mere vplivajo na oblikovanje cen nepremičnin, kar pa nismo potrdili za inflacijo. Prav tako smo ugotovili, da je vpliv analiziranih dejavnikov na slovenskem trgu drugačen, kot je njihov vpliv na evropskih nepremičninskih trgih. Zato ugotavljamo, da slovenski nepremičninski trg ni popolnoma primerljiv z razvitimi evropskimi nepremičninskimi trgi.

**Ključne besede**: nepremičnine, oblikovanje cen, BDP na prebivalca, obrestne mere, inflacija

# 1 Uvod

Na vrednost nepremičnin vplivajo različni dejavniki, od značilnosti same nepremičnine do vplivov mikro in makrookolja, v katerem je nepremičnina (Premik, 2007). Še več, ista nepremičnina lahko ima glede na namen vrednotenja v istem trenutku več vrednosti. Na primer, le v primeru popolnega nepremičninskega trga sta tržna cena in tržna vrednost nepremične enaki. Vendar pa je trg v dobršni meri nepopoln, kar povzročajo nehomogenost nepremičnin kot tržnih dobrin, nepopolna informiranost akterjev na trgu, omejena ter počasi prilegajoča se ponudba, majhno število prodajalcev in kupcev ter variabilno povpraševanje. Med ceno in vrednostjo zato nastajajo razlike, katerih velikost pa je odvisna od konkretnega posla, saj kupec in prodajalec tržno ceno dosežeta s pogajanji (Cirman idr., 2000).

Spremljanje cen nepremičnin je izjemnega pomena (Glindro idr., 2011), saj so v večini primerov ravno stanovanja največja naložba gospodinjstev in zato je tveganje cen nepremičnin glavno finančno tveganje, s katerim se srečujejo. Nihanja cen nepremičnin imajo večji učinek kot nihanja cen drugih materialnih dobrin. Vrednost nepremičnin je v mnogih državah precenjena in pričakujemo lahko spremembe tudi na tem področju.

Še več, analiza dejavnikov cen nepremičnin je pomembna, saj lastništvo nepremičnin pozitivno vpliva na zdravje prebivalcev in ima številne druge družbene posledice. Spremembe cen nepremičnin vplivajo tudi na gradbeništvo in druge gospodarske dejavnike, kot sta na primer brezposelnost in inflacija. V zvez s tem so bile izvedene številne študije, ki so obravnavale ekonomske in finančne vplive na spremembo cen nepremičnin, kot so na primer bruto družben proizvod (BDP), brezposelnost, obrestne mere in posojilni pogoji, redkeje pa tudi demografske značilnosti prebivalstva, kot sta na primer staranje in migracije. Čeprav makroekonomske dejavniki vplivajo predvsem na zmožnost plačevanja nepremičnin, finančni dejavniki, kot so obrestne mere in pogoji posojilnih pogodb, vplivajo na dostopnost posojil (Cohen, Karpavičiūtė, 2017).

Ena od značilnosti nepremičninskih trgov je poleg visoke stopnje razvoja hitra rast cen nepremičnin po finančni krizi. Dvig cen nepremičnin je povezan z večjim povpraševanjem po stanovanjskih posojilih, ki jih banke ponujajo po izredno nizkih obrestnih merah. Poleg tega naraščajoče povpraševanje po nepremičninah spodbuja gradnjo novih objektov, kar posledično

vodi do rasti BDP. Višji BDP pomeni tudi višji dohodek posameznika, kar spodbuja porabo večjega deleža dohodka za stanovanja (Béreš, 2015).

Glede na zgoraj zapisano smo v raziskavi analizirali tri makroekonomske dejavnike in njihov vpliv na gibanje cen nepremičnin v Sloveniji: BDP na prebivalca, obrestne mere in inflacija. Prav tako smo želeli odgovoriti na vprašanje ali veljajo za Slovenijo podobne ugotovitve glede gibanja cene nepremičnin kot v nekaterih razvitih evropskih gospodarstvih.

## 2 Teoretično ozadje

V nadaljevanju so omenjeni le nekateri rezultati, ki so povezani z našo raziskavo.

Martin, Moral-Benito in Schmitz (2019) menijo, da cena posojila, torej obrestna mera, vpliva na odločitev za najem stanovanjskega posojila, ki je za večino gospodinjstev ključnega pomena. Pri visokih obrestnih merah je zelo verjetno, da se bo gospodinjstvo odpovedalo posojilu in se odločilo za varčevanje. Po drugi strani pa se bo pri nizkih obrestnih merah povečalo povpraševanje po stanovanjskih posojilih in posledično to pomeni povečanje cen nepremičnin. Poleg BDP in obrestnih mer se analizira tudi inflacija (Martín, Moral-Benito, Schmitz, 2019). Po mnenju Korkmaz (2019) višja inflacija zmanjšuje spodbudo posameznikov za vlaganje v nepremičnine, kar posledično zmanjšuje povpraševanje po nepremičninah in s tem nižanje cen nepremičnin. Demografski dejavniki vplivajo tudi na cene nepremičnin, vendar imajo po mnenju Merikasa in sod. (2012) le manjši vpliv in imajo večji pomen le v manj razvitih državah, zato jih v raziskavo nismo vključili.

Tang in Xu (2014) navajata, da rast BDP povzroča večje povpraševanje po nepremičninah, a tudi višje cene nepremičnin. Po drugi strani spremembe cen nepremičnin vplivajo na BDP, saj nepremičnine predstavljajo večje bogastvo posameznika. Cene nepremičnin se bodo povišale, če se bo gospodarstvo "pregrelo" in bo centralna banka dvigovala denar za zmanjšanje likvidnosti kapitala in preprečevanje inflacije. Obrestne mere se bodo posledično zvišale, kar je v skladu s pozitivno elastičnostjo v opazovanem modelu. Cene nepremičnin na Švedskem, na katere najbolj vpliva realna obrestna mera, so npr. bolj občutljive kot cene nepremičnin v Združenem kraljestvu. Realna obrestna mera je cena financiranja naložb, zato bo visoka obrestna mera pomembno vplivala na ponudbo in povpraševanje po nepremičninah. Povečanje brezposelnosti bo povzročilo nižjo rast plač, povzročilo negotovost glede prihodnjih prihodkov

in zmanjšalo povpraševanje po nepremičninah. Z naraščajočo brezposelnostjo bodo ljudje bolj pozorni na svoje finančno stanje kot na gospodarstvo kot celoto. Zato lahko naraščanje cen nepremičnin povzroči nižja stopnja brezposelnosti. Cene nepremičnin so v pozitivni korelaciji z razpoložljivim dohodkom, ker višji dohodki povzročajo večje povpraševanje po nepremičninah, upad ponudbe nepremičnin pa bo povzročil povišanje cen nepremičnin.

Po raziskavi Sabala (2005) so dejavniki, ki vplivajo na cene nepremičnin, razpoložljivi dohodek, obrestna mera in inflacija. Razpoložljivi dohodek je tesno povezan z brezposelnostjo. Povečanje stopnje brezposelnosti zaradi nižjega razpoložljivega dohodka vodi v nižje povpraševanje po nepremičninah in nižje cene nepremičnin. Poleg tega veliko gospodinjstev pri nakupu nepremičnin uporablja stanovanjsko posojilo, zato je pomembno biti pozoren na obrestno mero. Nižja je obrestna mera, cenejše je posojilo in višje so cene nepremičnin. Po drugi strani pa višja obrestna mera vodi v dražje kredite in nižje cene nepremičnin. Raziskava poleg razpoložljivega dohodka in obrestnih mer analizira tudi, kako inflacija vpliva na cene nepremičnin. Povišanje cen gradbenega materiala posredno vpliva na cene nepremičnin, zato je to dokaz, da višja cena gradnje nepremičnin povzroča tudi višje cene nepremičnin.

## 3 Hipoteze in metode dela

Po nedavnih raziskavah (Merikas idr., 2012) ima BDP pomemben vpliv na cene nepremičnin na Finskem in v Nemčiji. Po drugi strani pa Avstrija in Španija beležita vpliv BDP na cene nepremičnin v manjši meri. Razlog izhaja iz dejstva, da imajo cene nepremičnin v Avstriji nižjo stopnjo rasti, ker se je povečal trg ponudbe nepremičnin. Do leta 2001 so bile cene nepremičnin v Avstriji za 14 % nižje kot leta 1994, po letu 2005 pa so začele hitro naraščati. Čezmerna gradnja nepremičnin in tujci, ki kupujejo nepremičnine v Španiji, vodita do manj pomembnega vpliva BDP na cene nepremičnin.

Podobno rezultati raziskav kažejo na to, da BDP na prebivalca pomembno vpliva na cene nepremičnin v Avstriji, Nemčiji in na Finskem (Béreš, 2015). Elastičnost cen je večja na Irskem, Nizozemskem, v Združenem kraljestvu in Franciji, kar pomeni, da majhna sprememba BDP na prebivalca pomembno vpliva na cene nepremičnin.

Cene nepremičnin so od začetka leta 2006 bolj občutljive na spremembe BDP, tik pred krizo pa so postale tudi bolj občutljive na spremembe dohodka (Hildebrandt idr., 2013). Poleg tega

je bilo potrjeno, da so leta blaginje povečala povpraševanje in prispevala k boljšemu standardu številnih gospodinjstev. To lahko vpliva na gospodinjstva, da se odločijo za nakup nepremičnin z najemom stanovanjskega posojila, ker pričakujejo povečanje prihodkov.

Po raziskavah Aizenmana, Jinjaraka in Zhenga (2016) so spremembe cen nepremičnin lahko povezane z višjimi realnimi BDP in BDP na prebivalca. Ta pozitivna povezava med spremembami cen nepremičnin in gospodarsko rastjo ostaja močna tudi po filtriranju gospodarske rasti, povezane s povečano porabo, naložbami, zaposlovanjem in dodeljevanjem kreditov. Povišanje cen nepremičnin za 10 % prispeva k višji gospodarski rasti za 0,2 %.

Navedeno kaže, da lahko pričakujemo pozitiven vpliv BDP na prebivalca na spremembo cen nepremičnin v Sloveniji, kar bomo preverili z regresijsko analizo.

**H1:** Tako kot v visoko razvitih evropskih državah tudi v Sloveniji BDP na prebivalca pomembno vpliva na spremembe cen nepremičnin.
Po empiričnih raziskavah Goodharta in Hofmanna (2008) se je pokazalo, da je v Nemčiji, Franciji, Italiji, Veliki Britaniji, na Švedskem, Finskem, v Španiji, na Nizozemskem in Irskem vpliv obrestnih mer na cene nepremičnin bolj pomemben, če se cene nepremičnin zvišajo bolj kot običajno. Mehurčke cen nepremičnin bi lahko spodbudil kreditni razcvet, ki je lahko posledica bogastva, liberalizacije finančnega trga ali finančnih inovacij, ki vodijo do nizkih obrestnih mer. Večja razpoložljivost stanovanjskih posojil lahko poveča cene nepremičnin, zlasti na območjih, kjer je ponudba nepremičnin nižja od povpraševanja. Po rezultatih Égerta in Mihaljeka (2007) se v Avstriji, Nemčiji, na Nizozemskem in v Italiji negativni znak pojavi le, če se uporabljajo obrestne mere za stanovanjska posojila, ponderirana z deleži tujih stanovanjskih posojil.

Obrestne mere kažejo, da bi bila cena kredita lahko eden glavnih razlogov za spremembe cen nepremičnin v razvitih gospodarstvih (Hirata idr., 2012). Dvig cen nepremičnin pred svetovno finančno krizo je sovpadal z obdobjem visoke likvidnosti v finančnem sektorju. Razlaga avtorjev je, da presenetljivi šoki obrestnih mer (ki so lahko gonilniki trga ali so posledica dejavnosti centralnih bank) znižujejo cene nepremičnin s povečanjem stroškov izposojanja.

Apergis in Rezitis (2003) ugotavljata, da obrestna mera pomembno vpliva na cene nepremičnin, in navajata, da močan dvig ponudbe denarja znižuje obrestne mere, stroški gospodinjstev se

zmanjšujejo, povpraševanje po stanovanjskih storitvah pa narašča. Tudi cene nepremičnin rastejo, saj so stanovanjske storitve tesno povezane s stanovanjskimi nepremičninami.

To kaže, da naj bi zniževanje obrestnih mer pomembno vplivalo na povečanje povpraševanja in posledično na cene nepremičnin v Sloveniji, kar bomo potrdili ali ovrgli z regresijsko analizo.

**H2:** Tako kot v visoko razvitih evropskih državah EU tudi v Sloveniji obrestna mera namenskih stanovanjskih kreditov pomembno vpliva na spremembe cen nepremičnin.

Pomemben vpliv inflacije na cene nepremičnin kaže več raziskav. Na primer, Goodharta in Hofmanna (2008) dokazujeta, da imata gospodarska aktivnost in inflacija pomemben vpliv na cene nepremičnin. Z naraščanjem inflacije raste tudi nominalna obrestna mera in cene nepremičnin padajo. Égert (2007) navaja, da so cene nepremičnin z inflacijo povezane le posredno z najemninami. Splošni vpliv je odvisen od deleža najemnin v harmoniziranem indeksu potrošniških cen (HICP), ki se lahko od države do države močno razlikuje.

Feldstein (1992) ocenjuje, da naraščajoča inflacija zmanjšuje spodbudo posameznikov za vlaganje v nepremičnine, kar posledično zmanjšuje povpraševanje po nepremičninah. Po drugi strani Kearl (1979) ugotavlja, da inflacija vodi do višjih cen nepremičnin in posledično zmanjšuje povpraševanje po njih.

Funkcije impulznega odziva kažejo, da pozitivni šok stanovanjskega posojila znižuje realne cene in navsezadnje povečuje povpraševanje po nepremičninah, medtem ko pozitivni inflacijski šok in šok zaposlovanja povečujejo realne cene, kar na koncu vodi do manjšega povpraševanja po nepremičninah (Apergis, Rezitis, 2003).
Glede na to, da imajo stanovanjske storitve, na katere vplivajo lastniki, veliko zasebne potrošnje, Cournède (2005) navaja, da bodo spremembe njihovih cen vplivale na odločitve gospodinjstev. Na primer: vse dražje stanovanjske storitve lastnikov pomenijo višje življenjske stroške, kar vpliva na določanje plač. Učinek višjih stanovanjskih stroškov, ki jih imajo lastniki, je jasen tako za potencialne kupce, ki prvič iščejo nepremičnine, kot tudi za obstoječe lastnike, ki iščejo večja stanovanja. Za obstoječe lastnike nepremičnin tako povišanje cen storitev spremlja povečanje dohodka od nepremičnin v obliki najemnin. Zato so lahko po dvigu cen stanovanjskih storitev zahtevki za plače prisotni dlje časa. Vendar bo takšen dvig cen na koncu veljal za odločitve gospodinjstev enako kot za druge oblike inflacije. Stanovanjski stroški lahko

imajo pomemben vpliv na inflacijske ukrepe. Stopnja inflacije v evroobmočju je leta 2004 za dve tretjini odstotne točke presegla stopnjo inflacije po HICP.

Po študiji Iacoviella (2002) so se cene nepremičnin zvišale na Švedskem, v Italiji in Nemčiji. Naraščajoča inflacija povzroča dvig nominalnih obrestnih mer, kar kaže na vladno protiinflacijsko denarno politiko. V mnogih državah davčni sistem implicitno lastnikom nepremičnin omogoča, da izkoristijo visoko inflacijo. Prehodni inflacijski šok bi zato moral povečati povpraševanje po nepremičninah in s tem zvišati njihovo ceno. Po drugi strani inflacija vodi do zmanjšanja proizvodnje in obrestnih mer, kar vodi k ravnovesju tega učinka.

Glede na zgoraj zapisano predpostavljamo, da inflacija vplivata na cene nepremičnin v Sloveniji, kar bosta dokazali ali ovrgli z regresijsko analizo.

**H3:** Tako kot v visoko razvitih evropskih državah ima tudi v Sloveniji inflacija pomemben vpliv na spremembe cen nepremičnin:

Za namen raziskave smo podatke pridobili na spletnih straneh Organizacije za gospodarsko sodelovanje in razvoj (OECD), na spletnih straneh Eurostata in na straneh Geodetskega zavoda RS. Za namen obdelave podatkov sta bila uporabljena programa Microsoft Excel in brezplačna verzija statističnega programa PSPP, ki omogoča podobne analize kot statistični program SPSS. Preverili smo, ali BDP na prebivalca, inflacija in obrestna mera statistično pomembno vplivajo na gibanje cen nepremičnin. Raziskava je omejena na čas od leta 2005 do 2019, pri čemer smo v okviru testiranja hipotez uporabili podatke med letom 2011 in letom 2019. Geografsko je omejena na razvite evropske države in primerjalno na Slovenijo. Zato rezultatov ne bo mogoče posploševati, saj verjetno na nekaterih drugih manj razvitih evropskih in svetovnih trgih cene nepremičnin pomembno definirajo drugi dejavniki.

## 4 Rezultati

Gibanje na evropskem trgu nepremičnin v letih pred finančno krizo in zlasti rast zadolženosti, ki je spremljala gospodinjstva v nekaterih država, so prispevali h kopičenju makroekonomskih neravnovesij. Pred letom 2008 je bila v večini evropskih držav zabeležena izjemno dolgotrajna in močna rast cen stanovanjskih nepremičnin. To rast je spremljalo močno povečanje obsega gradenj novih stanovanj in števila kreditov. Od takrat dalje so se cene zelo neenakomerno

spreminjale. V nekaterih državah, zlasti na Irskem, so se cene nepremičnin v letih po krizi znižale za več kot 50 %. V nasprotju z Irsko so se na Švedskem cene le malo spremenile ali so še naprej rasle, v večini drugih držav članic EU pa so cene nepremičnin močno narasle. Z okrepitvijo gospodarskega okrevanja so se okrepili tudi dejavniki povpraševanja. Skladno s tem se je v Evropi leta 2016 začela pospešena rast cen stanovanjskih nepremičnin (Eurostat, 2021).

V naši raziskavi smo s pomočjo empirične analize ugotavljali, ali je gibanje cen nepremičnin skladno z gibanjem, ki ga kažejo makroekonomski dejavniki. V raziskavi smo analizirali pomen in vpliv BDP na prebivalca, obrestnih mer in inflacije na spremembe cen nepremičnin.
Za merjenje sprememb v cenah stanovanjskih nepremičnin se uporablja indeks cen stanovanjskih nepremičnin (angl. House Price Index oz. HPI), ki opisuje gibanje cen vseh stanovanjskih nepremičnin, tako novozgrajenih kot rabljenih, neodvisno od njihovega namena in končne uporabe in neodvisno od preteklih lastnikov.

V nadaljevanju bomo uporabljali naslednje oznake:

HPI – indeks cen nepremičnin (2015 = 100)
BDP – bruto družben proizvod na prebivalca (v EUR)
OM – realna obrestna mera (v %)
INF – inflacija (v %)

Tabela 5 prikazuje povprečne vrednosti, standardni odklon ter najmanjše in največje vrednosti izbranih spremenljivk. Analizirali smo obdobje od 2011 do 2019 (devet let), podatki so pridobljeni iz evropskega statističnega urada Eurostat. V opazovanje smo vključili 11 držav EU: Nemčija, Španija, Italija, Avstrija, Finska, Velika Britanija, Irska, Francija, Nizozemska, Švedska, Slovenija.

Tabela 4: Povprečne vrednosti spremenljivk

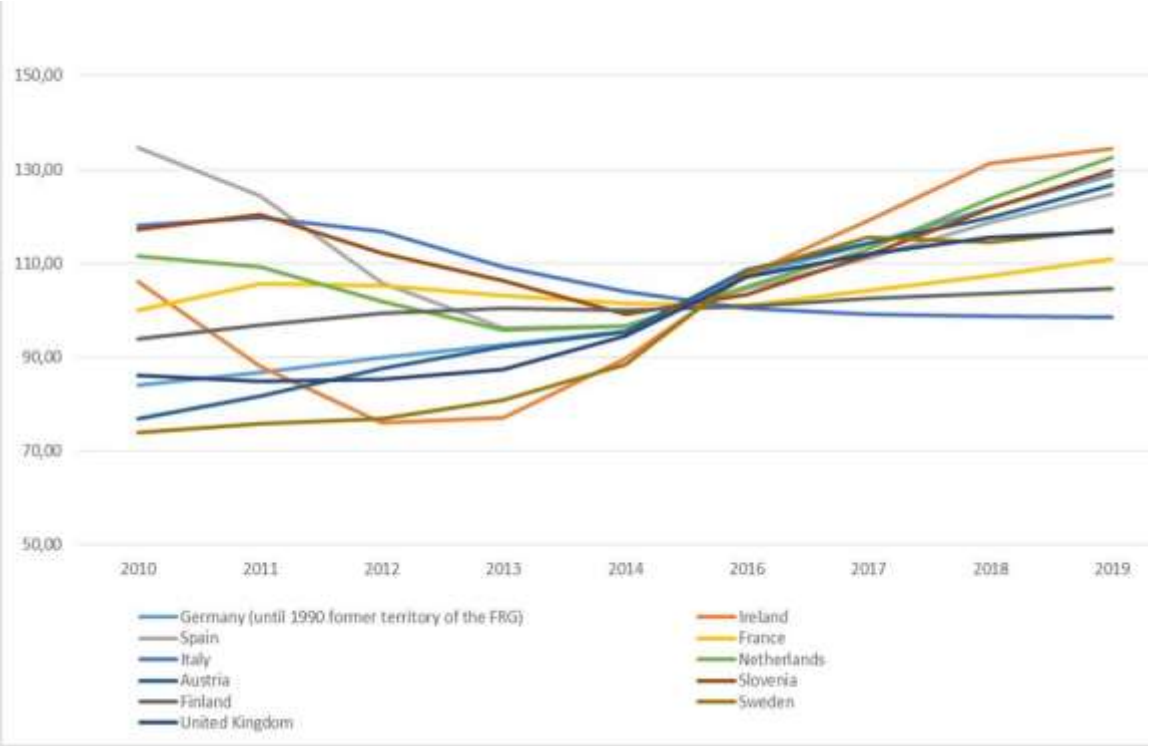
| Spremenljivka | Povprečje | Standardni odklon | Min. vrednost | Maks. vrednost |
|---|---|---|---|---|
| HPI | 104,1482 | 19,54589 | 54,707227 | 164,246 |
| BDP | 40.080,59 | 5.766,775 | 3.0145,11 | 6.8226,42 |
| OM | 2,88644 | 1,604334 | 0,09 | 9,5775 |
| INF * | 94,67336 | 6,603422 | 77,8 | 106 |

* Indeks cen življenjskih potrebščin (2015 = 100)

Vir: Eurostat, 2021.

Ob opazovanju gibanja cen nepremičnin v desetih visoko razvitih državah EU, ki jih zajema ta raziskava, opažamo, da so se cene nepremičnin višale do leta 2007, torej do začetka finančne krize. Po tem so se cene začele zniževati v vseh opazovanih državah. V Španiji in na Irskem so cene nepremičnin drastično padle, Nemčija, Avstrija in Švedska pa so beležile zmeren padec cen. Od leta 2015 so v skoraj vseh državah opazili znatno okrevanje po finančni krizi, cene nepremičnin pa so še naprej rasle (razen na Finskem in v Italiji).

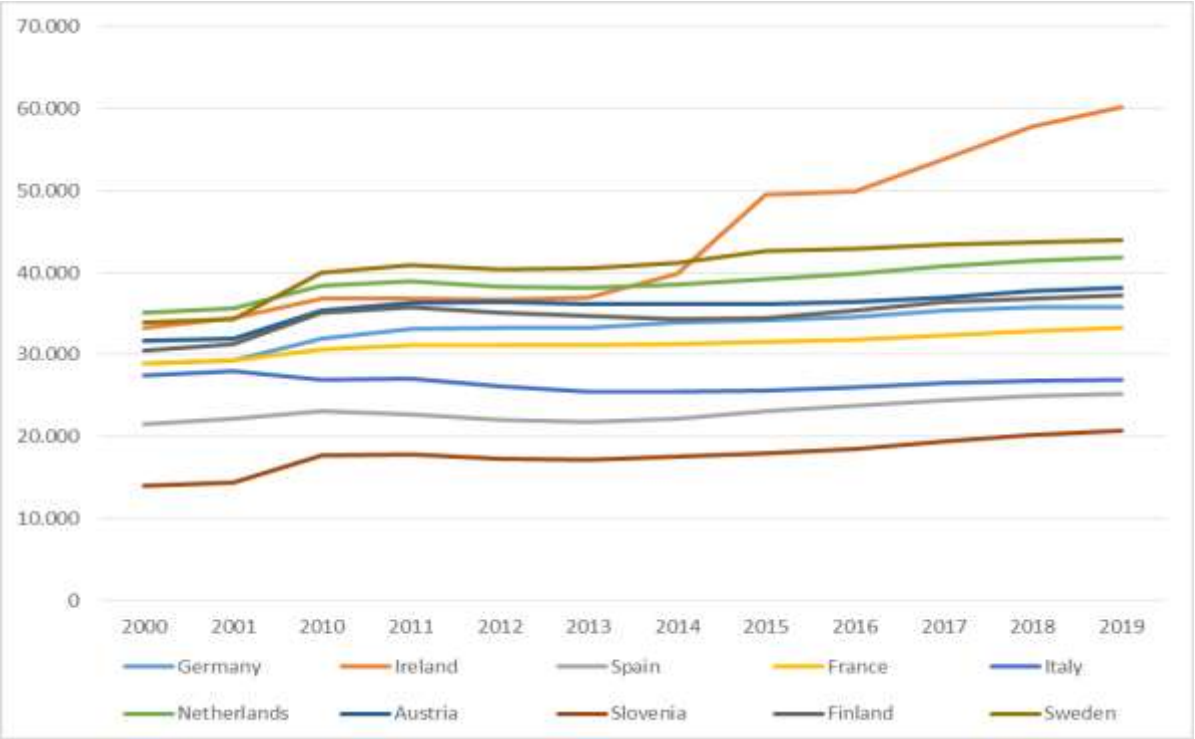
Graf 5: Gibanje indeksa cen nepremičnin v analiziranih evropskih državah (2015 = 100)




Vir: Eurostat, 2021.

BDP na prebivalca se je povečeval vse do začetka finančne krize. Nato pa je BDP v vseh opazovanih državah zmanjšal (Grafikon 2). Od leta 2013 je BDP spet začel zmerno rasti. Izjema je Irska, kjer se je BDP na prebivalca znatno povečal.

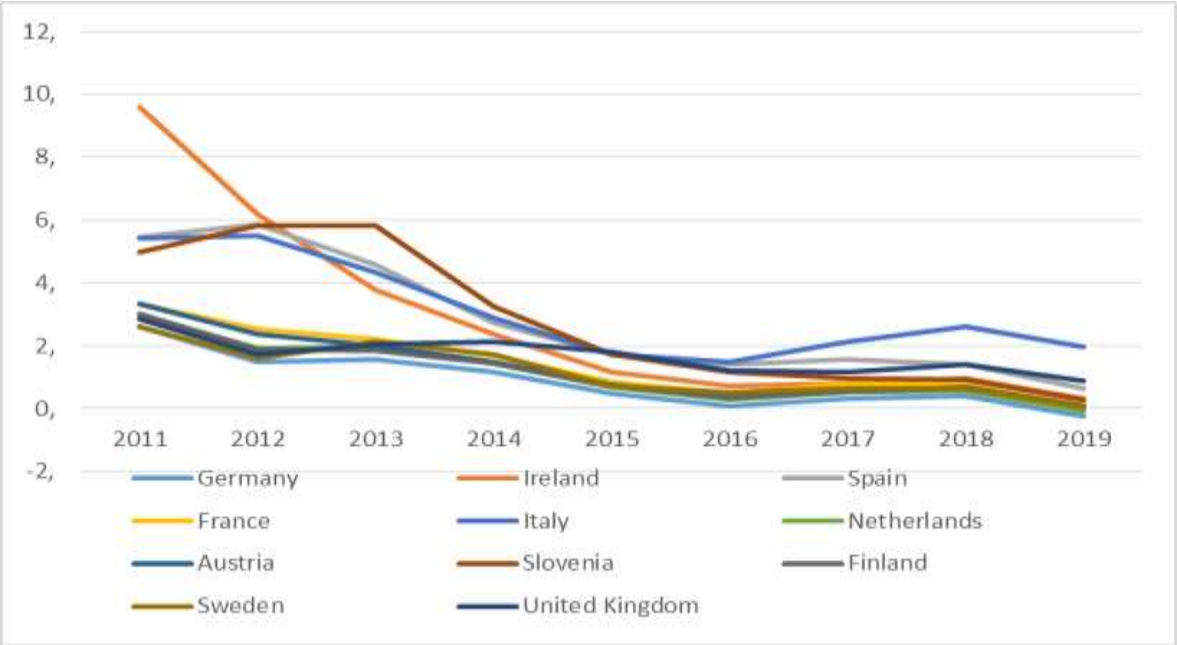
Graf 6: Gibanje BDP na prebivalca v analiziranih evropskih državah




Vir: Eurostat, 2021.

Graf 3 prikazuje gibanje obrestnih mer v izbranih državah EU. Dolgoročna obrestna mera se je v vseh državah od leta 2004 gibala v isti (padajoči) smeri in se je od leta 2005 do začetka finančne krize zmerno povečevala. Nato so se vrednosti obrestnih mer začele zmanjševati v skoraj vseh državah, razen na Irskem, v Španiji in Italiji. V teh državah je občutno zvišanje obrestnih mer prevladovalo do leta 2011, ko je vrednost močno padla. Sredi leta 2016 so države zabeležile vnovični dvig obrestnih mer.

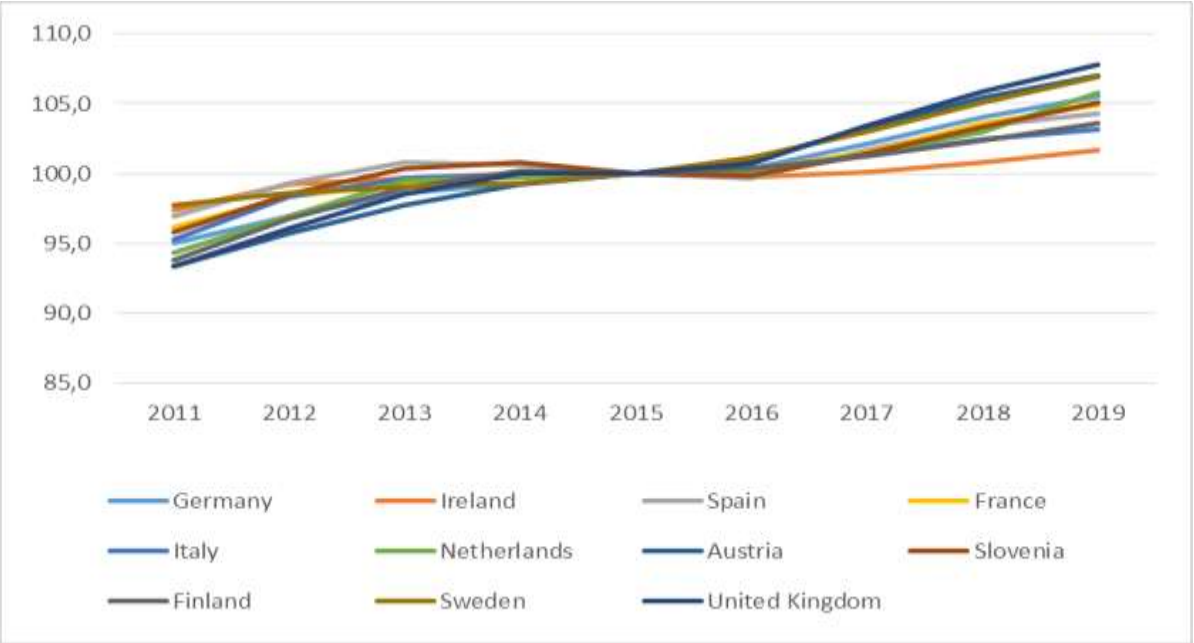
Graf 7: Gibanje realnih obrestnih mer v analiziranih evropskih državah




Vir: Eurostat, 2021.

Graf 4 prikazuje gibanje stopnje inflacije v opazovanem obdobju v izbranih državah. Močno upadanje stopnje inflacije je bilo sredi leta 2008 na Irskem. Od leta 2010 do leta 2013 je stopnja inflacije na Irskem spet sledila rastočemu trendu kot v drugih državah, čemur je sledilo obdobje, ko je bila stopnja inflacije v vseh državah približno enaka. Šele od začetka leta 2015 stopnja inflacije narašča.

Graf 8: Gibanje indeksa cen življenjskih potrebščin v analiziranih evropskih državah (2015 = 100)




Vir: Eurostat, 2021.

Tabela 1 prikazuje matriko Pearsonovih koeficientov korelacije (oznaka r) parov opazovanih spremenljivk in stopnjo pomembnosti (oznaka p). Korelacija med BDP na prebivalca in inflacijo ter cenami nepremičnin je pozitivna. Negativna korelacija obstaja med BDP na prebivalca in obrestno mero, med inflacijo in obrestno mero ter med obrestno mero in cenami nepremičnin. Med vsemi spremenljivkami, razen med obrestno mero in ceno nepremičnin, obstaja močna korelacijska povezava ($r \geq 0.8$). Med obrestno mero in cenami nepremičnin pa obstaja srednje močna korelacija ($0.5 < r < 0.8$).

Tabela 1: Matrika Pearsonovih koeficientov korelacije za izbrane spremenljivke

| | | BDP | INF | OM | HPI |
|---|---|---|---|---|---|
| **BDP** | r | 1,00 | 0,89 | -0,84 | ,98 |
| | p | | ,001 | ,005 | ,000 |
| **INF** | r | ,89 | 1,00 | -,88 | ,84 |
| | p | ,001 | | ,002 | ,004 |
| **OM** | r | -,84 | -,88 | 1,00 | -,72 |
| | p | ,005 | ,002 | | ,028 |
| **HPI** | r | ,98 | ,84 | -,72 | 1,00 |
| | p | ,000 | ,004 | ,028 | |

Za testiranje hipotez in natančnejšo analizo vpliva izbranih dejavnikov na gibanje cen nepremičnin v desetih razvitih državah EU in v Sloveniji smo uporabili regresijsko analizo, ki smo jo izdelali s pomočjo statističnega programa PSPP. Regresijsko analizo smo uporabili na dveh vzorcih podatkov, posebej za izbranih deset razvite države EU in posebej za Slovenijo. V končni fazi smo rezultate primerjali in analizirali.

V nadaljevanju so prikazani rezultati multiple linearne regresije. V Tabeli 2 in Tabeli 3 je izračunan multipli regresijski koeficient $\square^2$ za izbrane evropske nepremičninske trge in za slovenski nepremičninski trg. V prvem primeru ima le-ta vrednost 0,99, v drugem 0,96. Regresijska zveza torej pojasnjuje 99 % oziroma 96 % variabilnosti odvisne spremenljivke.

Tabela 2: Rezultati analize za izbrane evropske nepremičninske trge

| $\square$ | $\square^2$ | Prilagojeni $\square^2$ | St. napaka |
|---|---|---|---|
| 0,99 | 0,99 | ,98 | 1,23 |

Tabela 3: Rezultati analize za slovenski nepremičninski trg

| $\square$ | $\square^2$ | Prilagojeni $\square^2$ | St. napaka |
|---|---|---|---|
| 0,98 | ,96 | ,94 | 2,66 |

V nadaljevanju smo izvedli analiz variance. V Tabeli 4 in Tabeli 5 je izračunana F-vrednost (razmerje razložene variance z nerazloženo varianco), ki testira, ali je prikazani regresijski

model dober za analizirane vrednosti. Rezultati kažejo, da neodvisne spremenljivke dobro statistično predvidevajo gibanje odvisne spremenljivke, saj je vrednost stopnje pomembnosti manjša od 0,05 (za razvite evropske nepremičninske trge vrednost znaša 0,000 in za slovenski trg 0,001).

Tabela 4: Analiza variance za izbrane evropske nepremičninske trge

| | Vsota kvadratov | df | Povprečje kvadratov | F | p |
|---|---|---|---|---|---|
| Regresija | 694,06 | 3 | 231,35 | 154,09 | ,000 |
| Ostanek | 7,51 | 5 | 1,50 | | |
| Skupaj | 701,57 | 8 | | | |

Tabela 5: Analiza variance za slovenski nepremičninski trg

| | Vsota kvadratov | df | Povprečje kvadratov | F | p |
|---|---|---|---|---|---|
| Regresija | 855,42 | 3 | 285,14 | 40,21 | ,001 |
| Ostanek | 35,46 | 5 | 7,09 | | |
| Skupaj | 890,88 | 8 | | | |

Enačba regresijske premice za izbrane evropske nepremičninske trge:

$$HPI = -159{,}38 + 0{,}01 \cdot BDP + 0{,}49 \cdot INF + 2{,}75 \cdot OM$$

Iz enačbe vidimo, da z višanjem BDP na prebivalca, stopnje inflacije in obrestne mere naraščajo tudi povprečne cene nepremičnin na razvitih evropskih trgih. S testom lahko preverimo, kako pomembna je vsaka od neodvisnih spremenljivk v našem modelu.

Tabela 6: Koeficienti znotraj regresijske premice za izbrane evropske nepremičninske trge

| | B | Std. napaka | Beta | t | p |
|---|---|---|---|---|---|
| Konstanta | –159,38 | 32,50 | ,00 | –4,90 | ,003 |
| BDP | ,01 | ,00 | 1,17 | 11,31 | ,000 |
| INF | ,49 | ,38 | ,15 | 1,30 | ,250 |
| OM | 2,75 | ,70 | ,40 | 3,93 | ,011 |

Enačba regresijske premice za slovenski nepremičninski trg:

$$HPI = -66{,}74 + (5{,}47 \cdot BDP) + (0{,}16 \cdot INF) - (1{,}27 \cdot OM)$$

Vpliv obrestne mere je na slovenskem trgu nepremičnin negativen, to pomeni, da z višanjem obrestnih mer cene nepremičnin padajo. Tudi v tem primeru preverimo statistično pomembnost posameznih neodvisnih spremenljivk, pri čemer vidimo, da na ceno nepremičnin v Sloveniji statistično pomembno vplivata obrestna mera in BDP na prebivalca.

Tabela 7: Koeficienti modela za slovenski nepremičninski trg

| | B | Std. napaka | Beta | t | p |
|---|---|---|---|---|---|
| Konstanta | –66,74 | 50,71 | ,00 | –1,32 | ,236 |
| BDP | 5,47 | ,77 | 1,16 | 7,08 | ,001 |
| INF | ,16 | ,02 | 1,91 | 10,26 | ,000 |
| OM | –1,27 | ,56 | –,32 | –2,26 | ,074 |

Iz zgornjih izračunov lahko sklepamo, da Evropska modela nista primerljiva. V nadaljevanju smo primerjali izračun cene nepremičnin v Sloveniji s podatki za leto 2020 s pomočjo obeh regresijskih funkcij.

Inflacija je bila v letu 2020 negativna (INF = –0,1), BDP na prebivalca je znašal 1.9420 EUR, obrestna mera se znižuje in je konec leta 2020 znašala 2,2 %. S temi podatki smo izračunali predvideno ceno nepremičnin na podlagi evropskega in slovenskega regresijskega modela.

$$HPI\ (evropski\ model) = -159{,}38 + (0{,}01 \cdot 19420) + (0{,}49 \cdot (-0{,}1)) + (2{,}75 \cdot 2{,}2) = 40{,}821$$

$$HPI\ (slovenski\ model) = -66{,}74 + (5{,}47 \cdot 19420) + (0{,}16 \cdot (-0{,}1)) - (1{,}27 \cdot 2{,}2) = 106{,}157$$

Tudi na podlagi tega izračuna vidimo, da regresijski model za razvite evropske nepremičninske trge ni ustrezen za slovenski nepremičninski trg, saj na cene nepremičnin v Sloveniji nekateri dejavniki vplivajo bistveno drugače kot na razvitih evropskih nepremičninskih trgih.

V nadaljevanju bomo preverili še v uvodu postavljene hipoteze.

H1: Tako kot v visoko razvitih evropskih državah tudi v Sloveniji BDP na prebivalca pomembno vpliva na spremembe cen nepremičnin:

V raziskavi smo s pomočjo regresijskega modela analizirali vpliv BDP na prebivalca na gibanje cen nepremičnin v evropskem prostoru in v Sloveniji. Ugotovili smo, da BDP na prebivalca statistično pomembno vpliva na cene nepremičnin (vpliv je pozitiven, torej rast BDP pomeni tudi rast cen nepremičnin) tako na razvitih evropskih nepremičninskih trgih kot tudi na nepremičninskem trgu Slovenije. Vendar so velike razlike v stopnji vplivanja BDP na cene nepremičnin. V Sloveniji je vpliv BDP bistveno močnejši kot v proučevanih evropskih državah. Vpliv BDP na cene nepremičnin torej glede na analizirane trge ni enak, vendar pa je v obeh primerih statistično pomemben. Hipotezo smo potrdili.

H2: Tako kot v visoko razvitih državah EU tudi v Sloveniji obrestna mera namenskih stanovanjskih kreditov pomembno vpliva na spremembe cen nepremičnin.

Predvidevali smo, da zniževanje obrestnih mer pomembno vpliva na povečanje povpraševanja in posledično na cene nepremičnin v Sloveniji, kar smo dokazovali z opravljeno regresijsko analizo. V tem primeru se pri primerjavi vpliva obrestnih mer na cene nepremičnin na razvitih evropskih nepremičninskih trgih in na slovenskem nepremičninskem trgu pojavijo večje razlike. Medtem ko obrestne mere na razvitih nepremičninskih evropskih trgih na cene vplivajo pozitivno, pa na slovenskem trgu nepremičnin obrestne mere vplivajo negativno. Torej v Sloveniji velja, da cene nepremičnin rastejo kljub zvišanju obrestnih mer. Kljub tem razlikam pa ugotavljamo, da je vpliv obrestnih mer na cene nepremičnin v obeh primerih statistično pomemben in se hipoteza potrdi.

H3: Tako kot v visoko razvitih evropskih državah ima tudi v Sloveniji inflacija pomemben vpliv na spremembe cen nepremičnin:

Predvidevali smo, da inflacija statistično pomembno vpliva na cene nepremičnin v Sloveniji, kar smo analizirali s pomočjo opravljene regresijske analize. Iz izračunov ugotavljamo, da tega ne moremo potrditi niti za Slovenijo, niti za analizirane evropske države.

V raziskavi smo torej do določene mere potrdili prejšnje raziskave, vendar ne povsem, saj je bilo v dosedanjih raziskavah ugotovljeno, da vsi trije analizirani dejavniki vplivajo na cene

nepremičnin. Mi pa smo ugotovili, da na ceno nepremičnin vplivata samo dva dejavnika, BDP na prebivalca in stopnja obrestnih mer. Prav tako smo ugotovili, da se slovenski nepremičninski trg obnaša drugače kot drugi evropski trgi. Tukaj predvidevamo, da na cene nepremičnin na slovenskem nepremičninskem trgu v večji meri vplivajo tudi drugi dejavniki (npr. demografski dejavniki, migracije itd.), ki jih v naši raziskavi nismo analizirali.

# 5 Vpliv pandemije na cene nepremičnin

Pandemija virusa Covid 19 je močno vpliva na finančne trge in gospodarstvo po vsem svetu. Mnogi vlagatelji, lastniki nepremičnin, potencialni kupci stanovanj in najemodajalci se zato sprašujejo, kako je ta kriza vpliva na nepremičninski trg in cene nepremičnin. Po trenutnih informacijah še ni poročil o večjih padcih cen nepremičnin po svetu in tudi ne pri nas v Sloveniji. Vse kaže na to, da pandemija ni in ne bo zmanjšala povpraševanja po stanovanjih. Povpraševanje po nepremičninah že vrsto let presega skopo ponudbo nepremičnin v številnih mestih in regijah. Tudi v sedanjih razmerah se ta temeljni trend ne bo bistveno spremenil, saj bodo vzroki za pretirano povpraševanje še naprej obstajali. Veliko povpraševanje po stanovanjih v zadnjih letih je posledica rasti prebivalstva in stalnega priliva v urbane regije in srednje velika mesta. To je povzročilo znatno povišanje cen nepremičnin za prodajo in najem. Tudi novogradnje niso mogle zadovoljiti velikega povpraševanja. Zavedati se moramo tudi, da nepremičnine v času krize ne izgubijo privlačnosti za vlagatelje, saj lahko nepremičnine v kriznih časih še vedno štejemo za stabilno naložbo (Olick, 2021).

Veliko povpraševanje po stanovanjih v zadnjih letih je posledica rasti prebivalstva in stalnega priliva v urbane regije in srednje velika mesta. Trenutno se zdi, da bo nepremičninski trg kljub krizi, predvsem v večjih mestih, cenovno ostal stabilen. Tudi cene komercialnih nepremičnin so trenutno še vedno stabilne. Čeprav so se gospodarske panoge kot so hotelirstvo, gostinstvo in trgovina na drobno težje spopadale s koronsko krizo, tudi tukaj še ni zaznati večjih sprememb pri cenah poslovnih prostorov. Glede na dolge dobavne verige v več državah bi se težnja proizvajalcev, da ustanovijo svoja skladišča, dejansko lahko povečala in s tem okrepila trg tovrstnih nepremičnin (Olick, 2021).

Razumljivo je, da nekateri lastniki stanovanj in potencialni kupci dve leti po pojavu pandemije niso prepričani, ali je vlaganje v nepremičnine smiselno. Glede na trenutno stanje ni nobenega ekonomskega razloga, da vlagatelji in lastniki ne bi kupovali ali prodajali nepremičnin.

Trenutno tudi ni mogoče opaziti sprememb na ravni nizkih obrestnih mer. Za vlagatelje in potencialne kupce je privlačnost nepremičnin torej neprekinjena. Poleg tega po zaslugi informacijsko – komunikacijske tehnologije ničesar ne ovira tržnih poslov (Olick, 2021).

V Sloveniji je GURS je do sredine februarja 2021 za leto 2020 evidentiral približno 8.700 kupoprodaj stanovanj in 5.800 kupoprodaj hiš. Ocenjujejo, da je bilo število transakcij s stanovanji v primerjavi z letom 2019 manjše za 15 do 20 %, medtem ko je bilo število transakcij s hišami manjše le za 5 do 10 %. Manjše število transakcij s stanovanjskimi nepremičninami je bilo izključno posledica omejitev pri poslovanju z nepremičninami zaradi protikoronskih ukrepov. Medtem ko se je število nepremičninskih poslov lani zmanjšalo praktično v vseh segmentih, pa so cene stanovanjskih nepremičnin in zemljišč za njihovo gradnjo lani kljub epidemiji še nekoliko zrasle. V poročilu, objavljenem na spletni strani SURS, je zapisano, da se je v letu 2020 povprečna cena rabljenega stanovanja v primerjavi z letom 2019 zvišala za 5 %. V primerjavi z letom 2015, ko je bilo po krizi nepremičninskega trga leta 2008 doseženo cenovno dno, je bila že za tretjino višja in je na ravni države prvič presegla mejo 1.900 EUR na kvadratni meter. Po skokoviti rasti cen stanovanj v letih 2017 in 2018 ter stagnaciji v letu 2019 se je v primerjavi z letom 2019 cena rabljenih stanovanj v Ljubljani leta 2020 zvišala še za slabih 5,7 %. Stanovanja na območju okolice Ljubljane so bila v povprečju za dobro petino cenejša kot v Ljubljani, po skoraj 10-odstotnem povišanju leta 2019 pa so bile leta 2020 cene višje za 3,1 %. V Kranju, ki je za Celjem drugo med obravnavanimi območji, kjer so cene stanovanj leta 2019 najbolj zrasle, se je povprečna cena rabljenega stanovanja leta 2020 v primerjavi z letom prej zvišala še za 6,9 %. Stanovanja so bila v povprečju za dobro četrtino cenejša kot v Ljubljani. V Mariboru in Celju so cene stanovanj ostale praktično enake. V Celju se je cena leta 2020 v primerjavi z letom 2019 zvišala za 7,6 %, v Mariboru pa za 6 %. Cene stanovanj v Mariboru in Celju so bile v povprečju za več kot polovico nižje kot v Ljubljani. V Kopru se je povprečna cena rabljenega stanovanja v primerjavi z letom 2019 statistično znižala za 2,5 %, na območju Obale brez Kopra pa se je zvišala za 6,7 % in za razliko od drugih obravnavanih območij še naprej kaže razmeroma močan trend rasti. Cene stanovanj so bile leta 2019 v Kopru v povprečju za okoli petino nižje kot v Ljubljani, na območju Obale brez Kopra pa za nekaj manj kot 10 %, vendar se v zadnjem času hitro približujejo ljubljanskim (Zavec 2015).

Kako bo epidemija vplivalo na nepremičninski trg v prihodnje, bo odvisno od nadaljnjega razvoja in trajanja le-te ter uspešnosti državnih ukrepov za blaženje njenih posledic. V kratkem

obrata cen stanovanjskih nepremičnin in zemljišč za njihovo gradnjo v Sloveniji ni pričakovati. Povpraševanje v največjih mestih, predvsem pa v Ljubljani, je zaradi pomanjkanja novih stanovanj namreč še vedno večje od ponudbe. Povpraševanje spodbujajo predvsem nizke obrestne mere in veliki prihranki prebivalstva. Zvišanja obrestnih mer pa, glede na pandemijo in svetovne ekonomske razmere, vsaj srednjeročno ni pričakovati. Hkrati pa pritisk na rast cen novih stanovanjskih nepremičnin na strani ponudbe ustvarjata tudi rast cen zemljišč za njihovo gradnjo in rast stroškov gradnje, predvsem vse višje cene gradbenega materiala.

# 6 Sklepi

Konec leta 2008 je finančna kriza po propadu banke Lehman Brothers dobila globalne razsežnosti in je pretresla svetovno gospodarstvo. Propad so povzročila hipotekarna posojila v ZDA, kriza je povzročila upad splošne gospodarske aktivnosti na svetovni ravni. Svetovno gospodarstvo je bilo soočeno s krizo dramatičnih razsežnosti; institucije, kot so OZN in Svetovna banka, govorijo o najgloblji recesiji po drugi svetovni vojni, katere posledice še nekaj let po njenem začetku niso popolnoma razumljene in pojasnjene. To je bil eden najbolj kritičnih dogodkov na začetku 21. stoletja, ki nam je pokazal, kako zelo je nepremičninski trg pomemben v celotnem gospodarskem sistemu.

Tudi evropske države je prizadela finančna kriza in povzročila hud kreditni krč, ki je imel številne posledice, kot so padec BDP, proizvodnje, cen nepremičnin in cen delnic. Prav tako je ustavil razvoj celotnega finančnega sistema, pojavila sta se negotovost in strah pred prihodnjim razvojem v finančnem in bančnem sektorju. Pričakovanja bank glede prihodnjih prihodkov so bila pred finančno krizo preveč optimistična. Poleg tega sta slabo upravljanje in napačno izračunavanje tveganj privedla do hitrega kopičenja slabih posojil, kar je povzročilo uporabo precej bolj restriktivne kreditne politike in racionalizacijo posojil v prihodnosti. Sledilo je drastično zmanjšanje ponudbe kreditov na trgu. Kriza bančnega sektorja in vse pogostejša uporaba restriktivne kreditne politike sta skupaj z visokimi stopnjami varčevanja povzročila zmanjšanje naložb v osnovna in obratna sredstva ter zmanjšanje nakupov potrošniškega blaga, kar je povzročilo upad skupnega povpraševanja in rasti BDP.

V času gospodarske in finančne krize sta se povpraševanje in potrošnja na splošno močno zmanjšala, kupci so postali veliko bolj racionalni. Podobno velja tudi za dogajanje na nepremičninskem trgu. Zaradi gospodarske krize je prodaja nepremičnin kar nekaj zaporednih

let stagnirala ali celo upadala. Prav tako so posledično padale cene nepremičnin. Nekoliko boljša gibanja opažamo šele po letu 2014, ko se je začel nepremičninski trg spet nekoliko popravljati.

Trg nepremičnin ima nekatere posebnosti, ki večinoma izhajajo iz same narave le-tega. Hitro zvišanje cen nepremičnin se lahko zdi kot mehurček, če ni jasno prikazano, kako so na zvišanje vplivali posamezni dejavniki in če potek ni natančno pojasnjen. Negotovost na nepremičninskem področju obstaja vedno, na trgu zlahka nastanejo spremembe, ki bistveno vplivajo na prodajo. Zato je pomembno nenehno spremljati dejavnike, ki bistveno vplivajo na spremembe cen nepremičnin.

V naši raziskavi smo vpliv BDP na prebivalca, obrestne mere in inflacije na spremembe cen nepremičnin analizirali z uporabo regresijskega modela. Raziskave različnih avtorjev kažejo pomemben vpliv omenjenih spremenljivk na spremembo cen nepremičnin. Pridobljeni rezultati so pokazali, da sta BDP na prebivalca in obrestna mera statistično pomembno vplivata na spremembe cen nepremičnin. Po drugi strani pa to ne velja za inflacijo. Inflacija se je za manj pomemben dejavnik pokazala tako v primeru razvitih evropskih nepremičninskih trgov kot tudi v primeru slovenskega nepremičninskega trga. Na splošno pa smo ugotovili, da glede na rezultate regresijskega modela nepremičninski trgi razvitih evropskih držav in nepremičninski trg Slovenije niso popolnoma primerljivi.

Obrestne mere pomembno vplivajo na spremembe cen nepremičnin, kar dokazuje tudi naša analiza. Spremembe obrestnih mer vplivajo na stroške stanovanjskih posojil. Če se obrestne mere povečajo, bo to pomembno vplivalo na povečanje stroškov posojila. Višji stroški bodo zmanjšali število potencialnih kupcev nepremičnin. Prav tako lahko visoki stroški odplačevanja posojila prisilijo nekatere obstoječe lastnike nepremičnin k prodaji. Zaradi povečane ponudbe in padajočega povpraševanja po nepremičninah bodo cene nepremičnin padle.

Prav tako BDP na prebivalca pomembno vpliva na spremembe cen nepremičnin. Če cene nepremičnin odstopajo od osnovne vrednosti, se mora monetarna politika osredotočiti na naraščajoče cene nepremičnin. Zvišanje standarda, ki je posledica višjega BDP na prebivalca, vpliva na zvišanje nakupov nepremičnin. Trdimo lahko celo, da je BDP na prebivalca v Sloveniji bolj pomemben dejavnik oblikovanja cen nepremičnin kot na razvitih evropskih nepremičninskih trgih.

V primeru inflacije pa lahko trdimo, da se nepremičnine v večini primerov obnašajo kot naložba in kot dobrina, na katero inflacija vpliva. Cene nepremičnin se bodo ob določeni stopnji inflacije zvišale. Ko inflacija prizadene gospodarstvo, se bo povečala tudi količina denarja, ki ga je treba nameniti za nepremičnine. Za kupce je pomembno, da pravočasno ukrepajo, če predvidevajo povišanje splošne ravni cen, saj lahko inflacija vpliva na vrednost njihovih stanovanjskih posojil. Centralna banka se lahko posredno odzove na nastajajoča finančna neravnovesja in tako ublaži njihove dolgoročne škodljive učinke. V času nizke in stabilne inflacije pa centralne banke težje vodijo politike, ki bi bile usmerjene proti trendom v gospodarstvu. V Evropi pa se pojavlja še dodaten problem regionalnih razlik v cenah nepremičnin, kar bi bilo mogoče rešiti le s skupno denarno politiko.

## 7 Literatura in viri


Aizenman, J., Jinjarak, Y., Zheng, H. (2016). House valuations and economic growth: some international evidence. NBER, Working Paper No. 22699. Cambridge: National Bureau of economic Research. URL: https://www.nber.org/system/files/working_papers/w22699/w22699.pdf, 12. 9. 2021.

Apergis, N., Rezitis, A. (2003). Housing prices and macroeconomic factors in Greece: prospects within the EMU. Applied Economics Letters, 10 (12), 799–804.

Béreš, A. (2015). Family house market in Europe during the recent crisis (master thesis). Prague: Charles University in Prague, Faculty of Social Sciences, Institute of Economic studies.

Case, K. E., Shiller, R. J. (2003). Is there a bubble in the housing market?. Brookings Papers on Economic Activity, 34 (2), 299–362.

Cirman, A., et al. (2000). Poslovanje z nepremičninami: zapiski predavanj. Ljubljana: Ekonomska fakulteta.

Cohen, V., Karpavičiūtė, L. (2017). The analysis of the determinants of housing prices. Independent Journal of Management & Production, let. 8, št. 1, str. 49–63. URL: https://www.redalyc.org/pdf/4495/449549996005.pdf, 12. 9. 2021.

Cournède, B. (2005). Do house price developments matter for inflation-targeting monetary authorities? A view from the Euro area experience. Paris: OECD. URL: https://www.researchgate.net/publication/237793406_DO_HOUSE_PRICE_DEVELOPMENTS_MATTER_FOR_INFLATION-

TARGETING_MONETARY_AUTHORITIES_A_VIEW_FROM_THE_EURO_ARE A_EXPERIENCE, 12. 9. 2021.

Égert, B. (2007). Real convergence, price level convergence and inflation differentials in Europe. William Davidson institute Working Papers Series wp895. Ann Arbor: University of Michigan, William Davidson Institute.

Égert, B., Mihaljek, D. (2007). Determinants of house prices in central and eastern Europe. Comparative Economic Studies, 49 (3). URL: https://www.researchgate.net/publication/4736941_Determinants_of_House_Prices_in_Central_and_Eastern_Europe/citation/download, 12. 9. 2021.

Feldstein, M. S. (1992). Comment on James M. Poterba's paper, tax reform and the housing market in the late 1980s: who knew what, and when did they know it?. V: Real Estate and Credit Crunch, Proceedings of a Conference, Melvin Village, New Hampshire, september 1992 / Browne, L. in Rosegren, E. S. (ur.). Boston: Federal Reserve Bank of Boston, 252–257.

GDP growth (annual %). The World Bank, 2021. URL: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2019&start=2008, 12. 9. 2021.

GDP per capita in PPS. Eurostat, 27. 7. 2021. URL: https://ec.europa.eu/eurostat/web/products-datasets/-/tec00114, 12. 9. 2021.

Glindro, E. T., et al. (2011). Determinants of house prices in nine Asia-Pacific economies. International Journal of Central Banking. International Journal of Central Banking, 7 (3), 163–204.

Goodhart, C., Hofmann, B. (2008). House prices, money, credit, and the macroeconomy. Oxford Review of Economic Policy, let. 24, št. 1, str. 180–205.

Harmonised indices of consumer prices (HICP). Eurostat, 2021. URL: https://ec.europa.eu/eurostat/web/hicp/data/database, 12. 9. 2021.

Hildebrandt, A., et al. (2013). Residential property prices in central, eastern and southeastern European countries. Focus on European Economic Integration, 2, 52–76.

Hirata, H., et al. (2012). Global house price fluctuations: synchronisation and determinants. NBER Working Paper No. 18362. Cambridge: National Bureau of Economic Research. URL: https://doi.org/10.3386/w18362, 12. 9. 2021.

Iacoviello, M. (2002). House Prices and Business Cycles in Europe: a VAR Analysis. Boston College Working Papers in Economics 540. Boston: Boston College, Department of Economics.

Kearl, J. H. (1979). Inflation, mortgages, and housing. Journal of Political Economy, 87 (5), 1115–1138.

Korkmaz, Ö. (2019). The relationship between housing prices and inflation rate in Turkey: evidence from panel Konya causality test. International Journal of Housing Markets and Analysis, 13 (3), 427–452.

Martín, A., Moral-Benito, E., Schmitz, T. (2019). The Financial Transmission of Housing Bubbles: Evidence From Spain. Working Paper Series 2245ECB. Frankfurt: European Central Bank.

Merikas, A., et al. (2012). House price comovements in the Eurozone economies. European Research Studies, 15 (1), 71–98.

Premk, U. (2007). Nakup in prodaja nepremičnine. Ljubljana: Primath.

Olick, D. The housing market stands at a tipping point after a stunningly successful year during the pandemic. CNBC, 12. 3. 2021. URL: https://www.cnbc.com/2021/03/12/housing-market-covid-one-year-anniversary.html, 12. 9. 2021.

Sabal, J. (2005). The Determinants of Housing Prices: The Case of Spain. Working Papers ESADE No. 197. Barcelona: Esade Ramon Llul University. URL: https://itemsweb.esade.edu/biblioteca/archivo/working_papers_esade_197.pdf12. 9. 2021.

Xu, L., Tang, B. (2014). On the determinants of uk house prices. International Journal, 5 (2), 57–64. URL: http://ijeronline.com/documents/volumes/Vol 5 iss 02/ijer v05 i2(7).pdf, 12. 9. 2021.

Zavec, B. Cene stanovanjskih nepremičnin v letu 2020 višje za 5,2 %, v 4. četrtletju 2020 za 2,0 %. Statistični urad RS, 25. 3. 2021. URL: https://www.stat.si/StatWeb/News/Index/9457, 12. 9. 2021.

## ZAHVALA

Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: *Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva*; št. projekta J5-3112.

# Medgeneracijski odnosi pri podaljšanem sobivanju mlade in srednje generacije - stanovanjska problematika

**Manca Štefe**

*Evropska pravna fakulteta, Ljubljana, Slovenija*

**Bojan Grum**

*Inštitut za nepremičninske vede, Ljubljana, Slovenija*

*e-mail: bgrum@siol.net*

**Povzetek**

Slovenija po empiričnih podatkih glede podaljšanega sobivanja staršev in otrok (oz. mladih odraslih), sodi v sam vrh evropskih držav, saj slednji pozno vzpostavijo lastno in samostojno gospodinjstvo in zapustijo dom staršev. Na tradicionalno družino in medgeneracijsko sodelovanje vplivajo različni dejavniki – gospodarski, družbeni, demografski, kulturni, politični idr., zato gre tudi razloge za vse aktualnejši problem podaljšanega sobivanja mladih odraslih in njihovih staršev iskati tako v individualnih (npr. poklicni, zaposlitveni in dohodkovni položaj posameznika, partnerstvo in starševstvo, spol in osebne izbire) kot tudi strukturnih dejavnikih (npr. režim blaginje, delovanje trga dela, razpoložljivost stanovanj in kulturni vzorci družb). Za uspešen prehod mladih v odraslost pa so pomembni tudi regulativni ukrepi države (stanovanjski programi, subvencije ipd.).Pričujoča raziskava obravnava in proučuje fenomen podaljšanega sobivanja mladih (odraslih) in njihovih staršev. Izpostavljeni so trendi družinskega življenja v Sloveniji, navedeni dejavniki za podaljšano sobivanje in analizirane pravne podlage, pomembne za obravnavo stanovanjske problematike mladih. Rezultati in analiza anketnega vprašalnika pa dajo vpogled v odnose, stališča in mnenja, ki jih ima srednja aktivna generacija (40–61 let) do nepremičninske problematike mladih oz. do reševanja stanovanjskega problema mladih, med drugim njihov pogled na stanovanjsko problematiko mladih ter pomembnost različnih dejavnikov, ki vplivajo na podaljšano sobivanje (razvitost nepremičninskega trga, slaba dostopnost kreditov za nakup stanovanj, razmere na trgu dela, slaba stanovanjska politika oz. državna pomoč, pomanjkanje neprofitnih stanovanj idr.). Srednja generacija je izbrana prav zato, ker v medgeneracijskem odnosu predsvalja ekonosko in družbeno politično najvlivnejšo generacijo.

**Ključne besede:** mladi odrasli, starši, podaljšano sobivanje, stanovanjska problematika, srednja aktivna generacija, stanovanjska politika, stanovanje

# 1 Uvod

Slovenija sodi v sam vrh evropskih držav glede podaljšanega sobivanja staršev in mladih odraslih. Že podatki raziskave European Labour Force Survey iz leta 2007 nam dajo jasne številke: moški v Sloveniji v povprečju zapustijo dom staršev pri 31,5 letih, ženske pa pri 29,5 letih (po Kuhar, 2013, str. 792). Tudi prve raziskave mladine v Sloveniji (Mladina 93, Mladina 95, Mladina 98, Mladina 2000) so že zaznale značilnosti prelaganja odraslosti, med katerimi je seveda tudi podaljševanje bivanja v izvornih družinah – prehod iz družine staršev v lastno družino je vse poznejši (po Ule in Kuhar, 2003, str. 97). Enako pa potrdijo tudi novejše raziskave (Grum, Temeljotov, 2016). Kot ugotavlja Mandičeva (2009b, str. 78–79), so analize stanovanjskih in bivanjskih razmer mladih zanimive in pomembne z vidika delovanja sistema stanovanjske oskrbe (stanovanjske razmere mladih kot kazalnik delovanja sistema stanovanjske oskrbe), z vidika demografske reprodukcije (samostojno stanovanje kot funkcija ustanavljanja samostojnega gospodinjstva) in z vidika stanovanjske ranljivosti mladih (dostop mladih do stanovanja, njegova primernost).

Na tradicionalno družino in medgeneracijske odnose tako vplivajo gospodarski, družbeni, kulturni, politični in demografski dejavniki, ki pa se vsi kažejo tudi v problemu podaljšanega sobivanja mladih (odraslih) in njihovih staršev (po Ramovš, 2013, str. 6). Mandičeva (2007, str. 7–11) na primer opozarja na individualne in strukturne dejavnike. Med prve uvršča značilnosti posameznikov (poklicni, zaposlitveni in dohodkovni položaj posameznika, partnerstvo in starševstvo, spol in osebne izbire). Le-ti namreč pomagajo pojasniti kaj posameznike znotraj dane družbe žene k različnim izbiram in potem. Med strukturne dejavnike pa sodijo značilnosti okolja, ki pojasnjujejo zakaj posamezniki v isti družbi sledijo podobnim vzorcem odhoda od doma in zakaj se ti vzorci med državami razlikujejo (režim blaginje, delovanje trga delovne sile, razpoložljivost stanovanj in kulturni vzorci družb). Podobne družbeno-ekonomske vzroke: visoka stopnja brezposelnosti med mladimi, negotove službe, pomanjkanje cenovno dostopnih stanovanj in slabo razvit najemniški trg, premalo socialne pomoči za mlade (ki so jih starši primorani finančno podpirati) ter vpliv kulturnih dejavnikov (npr. pomembnost družinske solidarnosti), pa navajata tudi Holdsworth in Morgan (2005, str. 13). Pri vzpostavljanju razmer za uspešen prehod mladih v odraslost pa je pomembna tudi država s svojimi regulativnimi ukrepi in širša družba (po Lavrič V: Grum in Temeljotov Salaj, 2016, str. 77).

Odhod od doma je sicer eden prvih pomembnih prehodov v mlajši odrasli dobi, saj gre pravzaprav za enega od dogodkov, ki skupaj s finančno neodvisnostjo, zaključkom študija in pričetkom redne zaposlitve definirajo idejo »odraslosti« (Furstenberg et al. V: Billari in Liefbroer, 2007, str. 181). »Podaljševanje mladosti pomeni, da se povečuje število let, ko se mladi pripravljajo na odraslost, ko delajo na sebi in ko starši in izobraževalne ustanove vlagajo vanje; zmanjšuje pa se število let, ko so dejavni na trgu dela« (Buck in Scott, 2008, str. 193). Podaljšano sobivanje oz. nezmožnost vzpostavitve lastnega samostojnega gospodinjstva pa ima za posledico lahko neavtonomnost, pasivnost, pojav konfliktov med generacijami ipd., zato je lajšanje prehodov v odraslost zahtevna naloga, ki se je morajo države oz. družbe lotiti s številnimi ukrepi na zelo različnih področjih kot so šolstvo, zaposlovanje, oskrba s stanovanji oz. stanovanjska politika, varstvo otrok, enakopravnost med spoloma ipd. (po Ule in Kuhar, 2003, str. 121).

Mnenja in stališča t. i. mladih odraslih o stanovanjski problematiki, razlogih oz. dejavnikih za podaljšano sobivanje so tako že dodobra raziskana in znana, zato se magistrsko delo osredotoča na odnos srednje aktivne generacije (do stanovanjskega problema mladih). Kar se tiče starostnih kategorij oz. opredelitve generacij pa smo upoštevali naslednje:

- obdobje mladosti na stanovanjskem področju obsega starost od 18 do 34 let (Iacovou 2002; Avramov 1996; Saraceno in Olagnero 2003 V: Mandič, 2003, str. 79),
- Ramovš (e-vir) srednjo generacijo oz. srednja leta s socialnega vidika razdeli v tri podobdobja (za zgodnja srednja leta je značilna priprava in ustanovitev lastne družine, gre za čas uvajanja v poklicno delo in službo; osrednja leta življenja, ki so čas človekovega največjega poklicnega in službenega prispevka skupnosti ter pozna srednja leta, za katera je značilna priprava na upokojitev), v magistrski nalogi pa srednja generacija zajema prebivalstvo med 40-imi in 61-imi leti (W. R. Emmons in B. J. Noeth, 2013)[1],
- aktivno prebivalstvo pa predstavlja seštevek zaposlenih oz. delovno aktivnih in brezposelnih oseb (glej Statistični letopis, 2013).

[1] Emmons in Noeth v članku sicer obravnavata ekonomski in finančni status starejših Američanov (trende in pričakovanja) v času globalne finančne krize in gospodarske recesije. Za potrebe raziskave (primerjava dohodka in premoženja družin) razlikujeta med več tipi družin določenih po sledečih starostnih kategorijah: t. i. mlajši starejši, ki jih vodi oz. del katerih so ljudje v starostni kategoriji 62–69 let in starejši (stari 70 let in več) na eni strani ter mlade družine (zastopane s strani mlajših od 40 let) ter družine srednjih let (med 40-imi in 61-imi leti) na drugi strani.

V raziskavi sledimo raziskovalnemu vprašanju: Kakšni so odnosi, stališča in mnenja aktivne srednje generacije (40–61 let) do nepremičninske problematike mladih oz. do stanovanjskega problema? S kvantitativno metodo razkiskujemo odgovor na zastavljene hipoteze:

- Hipoteza 1: Po mnenju anketirancev, na podaljšano sobivanje otrok in staršev bistveno bolj vplivajo objektivni dejavniki (kot so npr. podaljševanje šolanja, situacija mladih na trgu dela, značilnosti stanovanjskega trga) kot pa subjektivni dejavniki (npr. lagodnost življenja doma).
- Hipoteza 2: Anketiranci, ki živijo s svojimi otroki (v starosti 18–34 let) imajo slabše medsebojne odnose (odnos starš-otrok), kot tisti, katerih otroci so se že odselili oz. se osamosvojili.
- Hipoteza 3: Tisti anketiranci, katerih otroci so že osamosvojeni, so bolj zadovoljni s kvaliteto življenja, kot tisti, ki bivajo skupaj.

»Mladost je družbeni status, ko se mlad človek pripravlja in opravlja obveznosti za prehod v odraslost in lahko seže čez obdobje adolescence oziroma psihosocialnega dozorevanja« (Ule, 2008, str. 120). V sociološki literaturi je mladost najpogosteje definirana kot stopnja socializacije in prehoda v odraslost: tradicionalne razlage so uporabljale modernistične ideje napredka, gibanja naprej in prehajanja v neodvisnost, sodobne konceptualizacije pa mladost obravnavajo kot osrednjo in strateško fazo v življenjskem poteku, obdobje tveganja, negotovosti, individualizacije. Gre za diverzifikacijo poti v odraslost, saj posamezniki sami določajo svoj družbeni položaj v odraslosti v procesu pogajanj. Izvor oz. poreklo sta še vedno pomembna, kar pomeni, da je sposobnost posameznika za uspešno pogajanje o lastnem prehodu še vedno odvisna od kulturnega kapitala in družinske podpore, vendar je hkrati odvisna tudi od drugih možnosti in strukturnih ovir (spol, religija, etnična pripadnost ipd.) (po Ule in Kuhar, 2002, str. 39).

Mladost torej predstavlja čas oz. vmesnost med dvema relativno trdno definiranima in prepoznavnima življenjskima obdobjema – tj. obdobje otroštva in obdobje odraslosti. Če je mladost od vsega začetka veljala za labilno in ambivalentno razvojno obdobje, ki zahteva skrb in nadzor odraslih, pa je bila v 20. stoletju prepoznana kot izrecno formativno življenjsko obdobje. Slednje je ključnega pomena za življenje in delo odraslega človeka, pravi Uletova (2002, str. 9–10). »Če je v tradicionalnih družbah mlad človek zgolj prevzemal vzore vedenja, motivacij in ideoloških predstav, ki so mu jih posredovale avtoritete družine in okoliške družbe, in mu ni bilo treba skrbeti za njihovo utemeljitev in ovrednotenje, je moral v novoveških in

modernih družbah poskrbeti tudi za upravičenje in ovrednotenje vedenjskih in motivacijskih vzorcev in ideoloških predstav. Moral jih je skratka zavestno ponotranjiti kot sestavino svoje osebnostne strukture« (Ule, 2002, str. 10).

Pomen mladosti oz. oblikovanje obdobja med otroštvom in odraslostjo se je pojavilo v družbah, kjer je odraščanje postalo stvar izbire, odločanja in odgovornosti posameznika oz. kot pravi Gillis (V: Ule 2008, str. 49): »Ni naključno, da je šele evropski novi vek, ki pomeni vzpon meščanskega individualizma in razbitje tradicionalnih socialnih povezav odkril mladost kot obdobje med otroštvom in odraslostjo. Odkritje mladosti je bilo nujno v vseh družbah, ki omogočajo razmah individualnosti in kjer mesto posameznika ni bilo že vnaprej določeno.«

V 20. stoletju je delo z mladimi postalo poseben družbeni projekt, ki je združeval načrtno vzgojo, nadzor in številna pedagoško-politična posredovanja ideoloških aparatov države, znanosti in vodilnih družbenih institucij, saj je bila mladost prepoznana kot izrecno formativno življenjsko obdobje, ključno za življenje in delo odraslega. Uletova (2008, str. 51–52) navaja tudi dejstvo, da je na vzpostavitev mladosti vplivala institucija obveznega šolanja otrok in podaljševanja šolanja, saj je šola »v sodobni družni postala bistvena institucija, ki je posredovala med družino in širšo družbo in je dobila prevladujočo nazorno funkcijo nad odraščajočimi mladimi ljudmi.« Sodobna potrošniška družba pa je s specifično mladinsko potrošnjo, ki je bila ekonomska podlaga za nastajanje specifične mladinske kulture, naredila zadnji korak v družbeni konstrukciji mladosti in mladine.

Spremembe pozne moderne (servisna, informacijska, transportna, bančna, borzna družba nagnjena v smeri visoke računalniške, programske, izobraževalne in raziskovalne tehnologije) pa podaljšujejo in spreminjajo obdobje mladosti in status mladih, saj se podaljševanje šolanja in izobraževanja podaljšujeta, mladi pa dlje časa ostajajo odvisni. Znotraj mladosti tako razlikujemo več značilnih obdobij:

- klasična mladost (14–18 let): pretežno statusi dijakov, vajencev,
- podaljšana mladost (19–24 let): obdobje visokošolskega in univerzitetnega študija,
- predodraslo obdobje (25–29 let): obdobje prehoda v ekonomsko in socialno neodvisnost, torej v zaposlitev, ustvarjanje kariere in lastne družine (po Ule, 2008, str. 125–126).

Iacovou-ova (2002 V: Mandič, 2009b, str. 79) za mlade pomembno obdobje opredeli tisto med 18-im in 34-im letom, saj gre za čas, v katerem večina mladih preživi pomembne medsebojno

povezane prehode, ki pa so seveda pomembni tudi pri obravnavi stanovanjskih razmer mladih. Gre za naslednje prehode iz: starševskega v samostojno gospodinjstvo, iz samskega v partnerski status, iz stanja brez otrok v starševstvo, iz stanovanja staršev v avtonomno stanovanje.

## 2 Medgeneracijsko sobivanje

Tako imenovani mladi odrasli ali polodrasli so mladi, »ki po vseh tradicionalnih merilih (starost, izobrazba) ne sodijo več v kategorijo mladih, vendar še niso dosegli socialnega statusa odraslih v tradicionalnem pomenu; niso ekonomsko samostojni, ali nimajo redne zaposlitve, ali nimajo lastne družine, ali živijo v izvornih družinah« (Ule in Kuhar, 2003, str. 41; Ule, 2008, str. 241). Gre za izraz, ki je nadomestil postadolescenco in je še pred nekaj desetletji označeval podaljševanje mladosti v pozna dvajseta leta življenja posameznika. Mladi odrasli pa zajemajo obdobje druge polovice dvajsetih in se vse bolj podaljšujejo čez trideseta, vendar ne predstavljajo nadaljevanje postadolescence, saj status mladih odraslih ne deli aktivizma, optimizma, radikalizma, kot je bilo to značilno za postadolescentski študentski status. Status mladih odraslih se ne ukvarja s problemi družbe, ampak se vrača na izhodišča – v izobraževanje, v izvorno družino ali ohranja določena sidrišča iz mladosti (po Ule in Kuhar, 2003, str. 41).

Podaljševanje mladosti, torej podaljšano življenje mladih ljudi (tudi mladih odraslih), je trend, ki je bolj ali manj prisoten v vseh evropskih državah in dodobra dokazan v večih raziskavah o mladini. Za mlade odrasle »so pogosti reverzibilni prehodi:

- zapustijo dom staršev in se vrnejo čez nekaj mesecev,
- zapustijo šolo in se spet vključijo vanjo čez nekaj časa,
- najdejo si delo, ki ga lahko vsak hip izgubijo,
- živijo v negotovi partnerski zvezi, za katero ne vedo, kako dolgo bo trajala,
- spreminjajo svoje poklicne aspiracije zaradi svojih osebnih preferenc ali zaradi razmer na trgu dela,
- razvijajo "zbrkljane" življenjske stile, kjer lovijo ravnotežje med prilagajanjem in potrebo po "štrleti ven"« (Walther in Schlathoof V: Ule in Kuhar, 2003, str. 41).

Zanje je torej značilno obdobje intenzivnega identitetnega raziskovanja, obdobje spreminjanja življenja ter obdobje intenzivnega občutka vmesnosti med mladostjo in odraslostjo. Živijo v dobi nestabilnosti in sprememb (v bivalnih razmerah, odnosih, delu, izobraževanju), od vseh

življenjskih obdobij pa so ravno v tem najbolj osredotočeni nase, na samouresničitev (po Ule, 2008, str. 241).

Andreas Walther in Alter Schlathof (V: Ule in Kuhar, 2003, str. 41–42) pa razlikujeta tudi tri tipe načinov življenj mladih odraslih:

- deljena življenja živijo osebe, ki doživljajo nekatere vidike mladosti in druge aspekte odraslosti (npr. živijo odgovorno poklicno življenje in hkrati živijo podaljšano otroštvo v izvornih družinah),
- neodločena življenja živijo osebe, ki se nezaznavajo niti kot mlade niti kot odrasle, saj v svojem prehodnem statusu ne vidijo jasnih in oprijemljivih ciljev prehoda v odraslost,
- nihajoča življenja oseb, ki želijo ohraniti privilegije obeh statusov ali pa se izogniti negativnim vidikom enega in drugega statusa.

LAT faza (oz. angleško living apart togehther) predstavlja naraščanje t.i. »poldružinskega« življenja in se pogosto vriva med obdobji otroštva oz. mladosti in odraslosti. Fenomen podaljšane mladosti, značilen za postmodernost, se torej manifestira skozi LAT fazo, ki predstavlja obdobje življenja skupaj s starši in hkrati narazen od njih. Dumon (V: Švab 2001, str. 169) kot značilnosti obdobja med družino orientacije in družino prokreacije navaja neodvisnost in avtonomijo mladih ter pojav kohabitacij. Omenjena faza se podaljšuje skladno s podaljševanjem izobraževanja oz. študija, pa tudi po končanem šolanju vedno več mladih ostaja doma oz. bivanje doma kombinirajo z občasnim bivanjem drugje (npr. pri partnerju) (glej Ule in Kuhar 2003, str. 97; Švab, 2001, str. 169).

Za LAT fazo je značilna ekonomska odvisnost ali polodvisnost od staršev ob hkratni socialni neodvisnosti, torej vmesna faza med družinsko odvisnostjo in od izvorne družine docela neodvisnim življenjem, ki pa ne pomeni nujno najboljšega načina sobivanja za obe strani. Renerjeva (1996, str. 139; 2006b, str. 97) domneva, da je LAT faza sprejemljivejša za mlade in kot primer navaja ameriško raziskavo iz osemdesetih let. Rezultati so namreč pokazali, da je LAT faza stresno obdobje predvsem za starše, saj so se po odhodu otrok med 20-im in 30-im letom pomembno izboljšali odnosi med partnerjema oz. staršema, če pa so otroci, ki so dom zapustili s starši ohranjali redne stike, pa se je povečalo tudi splošno življenjsko zadovoljstvo staršev (po White in Edwards V: Rener, 2006b, str. 97).

T. i. poldružinsko življenje oz. LAT faza je eden izmed najpogostejših načinov družinskega življenja v Sloveniji, vendar ga težko zajeti s statističnim raziskovalnim aparatom, saj lahko pomeni številne življenjske aranžmaje: živeti doma v času podaljšanega šolanja, torej do 26-ega leta, živeti doma tudi po zaključku šolanja in po zaposlitvi, živeti doma z občasnim življenjem drugje, živeti drugje z rednim obiskovanjem starševske družine in s kontinuirano uporabo njenih storitev in opor (po Rener, 2006a, str. 18). Najverjetneje pa gre razloge za podaljšano sobivanje iskati v kombinaciji zunanjih (npr. nezaposlenost, ekonomska neodvisnost, podaljševanje študija ipd.) in subjektivnih dejavnikov (npr. lagodnost življenja doma, poceni nastanitev, razumevanje s straši, emocionalna varnost).

Opredelitev družine oz. omejitev definicije družine je v zadnjih desetletjih sprožila ogromno strokovnih in znanstvenih diskusij, saj različne stroke isti pojem lahko razumejo drugače. Kot pravi Renerjeva (2006a, str. 15) bi bilo najbolj smiselno oblikovati definicijo, ki bi bila razlikovalna (destinktivna), inkluzivna (nediskriminatorna) in operativna (socialnopolitično, statistično in razlikovalno operacionalna). Sodobna statistična stroka navadno družino opredeli z definicijo oz. priporočilom Ekonomske komisije Združenih narodov za Evropo (UNECE). Ta se pogosto uporablja za popisne in populacijsko statistične namene: »Družino definiramo v ožjem smislu kot jedrno družino, to sta dve osebi ali več oseb, ki živijo v skupnem gospodinjstvu in so med seboj povezane z zakonsko zvezo, kohabitacijo ali starševskim razmerjem« (Keilman V: Rener, 2006a, str. 15). Se pa od statistične definicije družine razlikuje npr. sociološka, ki kot konstitutivni element družine opredeljuje starševsko razmerje kot socialno razmerje. Slednjih je razmeroma veliko, vendar jim je v večini skupno to, da jo opredeljujejo kot vsaj dvogeneracijsko skupnost in družbeno institucijo, ki skrbi za otroka/e. Definicija OZN je tako sledeča: »Družino predstavljajo vsaj en (odrasel) človek ali skupina ljudi, ki skrbi za otroka/e in je kot taka (torej kot družina) prepoznana v zakonodajah ali v običajih držav članic« (Family: Forms and Functions V: Rener 2006a, str. 16). Medtem ko družina v sociološki interpretaciji označuje in poudarja strukturne in formalne dimenzije, torej en vidik družinskega življenja, pa družinsko življenje pomensko implicira večjo družbeno kompleksnost, predvsem spremenljivost, dinamičnost in kompleksnost komunikacij. Spremenljivost oz. delovanje ne poteka samo na relaciji med zasebno in javno sfero (med drugim med družino in državo), ampak tudi znotraj zasebnosti (prijateljski in sorodniški odnosi) (po Švab, 2001, str. 44–45).

Med pojmoma gospodinjstvo in družina razlikujeta tako statistična kot tudi sociološka stroka, vendar gospodinjstvo v statističnih oz. demografskih študijah predstavlja bistveno pomembnejšo enoto analize. Gospodinjstvo sestavlja skupina oseb, ki živijo v istem bivališču, kot gospodinjstvo pa obravnava tudi le eno osebo z bivališčem, tj. samsko gospodinjstvo.
»Nekatera (nacionalna) statistična opredeljevanja gospodinjstev zahtevajo še dodatne kriterije, na primer (vsaj delno) skupni gospodinjski proračun in redno skupno uživanje obrokov npr. britanska statistika). Gre za različna koncepta gospodinjstva, prvi je vezan le na skupno bivanje (bivanjski koncept gospodinjstva, "dwelling unit concept"), drugi pa na vzdrževanje gospodinjskih dejavnosti (skupni proračun in obroki, "housekeeping unit concept")« (Rener 2006a, str. 19).

Aktivno prebivalstvo je definirano kot seštevek delovno aktivnega prebivalstva in brezposelnih oseb (glej Statistični letopis, 2013, str. 220). Delovno aktivno prebivalstvo so po definiciji Statističnega registra delovno aktivnega prebivalstva (SRDAP) lahko zaposlene osebe s pogodbami o zaposlitvi (nedoločen in določen delovni čas, polni delovni čas in krajši delovni čas) ter samozaposlene osebe, ki so obvezno socialno zavarovane. Poleg obveznega socialnega zavarovanja morajo biti te osebe stare najmanj 15 let ter delati na območju Republike Slovenije (po Statistični letopis, 2013, str. 218).

Anketa o delovni sili (ADS), ki je bila v Sloveniji uvedena leta 1993 in jo SURS izvaja četrtletno pa med delovno aktivno prebivalstvo šteje tudi zaposlene osebe, ki so začasni ali trajni presežki (do prenehanja delovnega razmerja), pomagajoče družinske člane in osebe na porodniškem dopustu (po Statistični letopis, 2013, str. 219). Naslednje okoliščine pa veljajo za registrirano brezposelno osebo (oz. iskalca zaposlitve):

- »nima redne zaposlitve ali samozaposlitve, ni lastnik ali solastnik poslujočega poslovnega subjekta ali ni lastnik ali uporabnik nepremičnin, s katerimi bi se lahko preživljal,
- je sposoben in voljan delati ter je pripravljen sprejeti zaposlitev, primerno njegovi strokovni izobrazbi oziroma z delom pridobljenim delovnim zmožnostim, in se zaradi iskanja zaposlitve prijavi na pristojnem uradu za delo Zavoda RS za zaposlovanje« (Statistični letopis, 2013, str. 219).

Galland (V: Côté 2000, str. 183) navaja tri modele podaljševanja mladosti: mediteranski model (podaljšano bivanje, mladi ostajajo doma dlje časa), severnoevropski model, ki vključuje tudi Francijo (mladi zgodaj zapustijo dom staršev, vendar pozno začnejo družinsko življenje) ter

britanski model (hitro vstopanje na trg dela, daljše obdobje življenja s partnerjem, vendar brez otrok). Gallandova tipologija vključuje tako izobrazbo in zaposlenost kot tudi vzpostavljanje lastnega gospodinjstva; Iacovouvova (V: Ule in Kuhar, 2003, str. 77) pa se je ukvarjala z vzorci vzpostavljanja lastnega gospodinjstva in razlikuje med severnim (Danska, Nizozemska, Velika Britanija, Francija, Belgija in Luksemburg) ter južnim tipom (Italija, Španija, Portugalska in Grčija).

Uletova in Kuharjeva (2003, str. 77) govorita o tipologiji modelov prehodov v odraslost, ki je izoblikovana na podlagi družbenozgodovinskih dejstev – kulturnih, geografskih in političnih razlik ter državnih ukrepov – različnih tipov režimov blaginje. Izpostavljata sredozemski, nordijski, srednjeevropski, anglo-ameriški in postkomunistični model. Kljub temu, da so razmere v posameznih državah kompleksne in različne, pa jih vseeno lahko umestimo v določen tip. Na kratko si poglejmo značilnosti posameznih tipov.

V sredozemski model uvrščamo Italijo, Grčijo in Španijo, kjer lahko najdemo podobne vzorce, saj močno izstopa podpora s strani izvorne družine in njena nenehna prisotnost. Študij mladih traja dolgo časa, saj je izobraževalni sistem zelo standardiziran in srednje stratificiran, trg dela pa je rigiden. Stopnja brezposelnosti je v teh državah višja kot v preostalem delu Evrope, zato mladi ekonomsko neodvisnost dosežejo razmeroma pozno. Slab položaj na trgu dela tako bistveno pripeva k podaljšanju bivanja pri starših, k prelaganju procesov avtonomije in k odlašanju z oblikovanjem družine (po Ule in Kuhar, 2003, str. 78–82). Značilnost nordijskega socialnega modela je, da ponuja univerzalne ugodnosti za vse državljane (pomembni načeli sta univerzalizem in egalitarizem). Laaksonen (V: Ule in Kuhar, 2003, str. 82) izpostavlja, da je za ta model značilna aktivna državna pomoč pri kombiniranju družinskega življenja in poklicnega dela, saj gre za model, ki je ustvaril t.i. javno družino, kjer sta oba starša v službi, otroci pa v javnem varstvu. Kljub temu, da ta model promovira zgodnje eksperimentiranje mladih tako v zasebnem kot poklicnem življenju, pa so splošni cilji dobiti dobro službo, zagotovitev materialnega zadovoljstva, ustvariti stabilen dom. Tako večina mladih pri 25-ih letih, po obdobju preizkušanja, že izvrši uspešen prehod (po Ule in Kuhar, 2003, str. 82-88).

Neodvisno življenje ima velik pomen predvsem na Švedskem: večina študentov živi v študentskih domovih ali najetih sobah, doma živi le okrog 10 % mladih odraslih med 25–29 letom, tudi dobra tretjina tistih med 18-im in 20-im letom starosti je že odseljenih (Cook in Furstenberg V: Ule in Kuhar, 2003, str. 84). Dodatne možnosti za nastanitev v lastnem

gospodinjstvu je med sredino 60-ih in 70-ih let omogočil t. i. milijonski program, po katerem so za ublažitev pomanjkanja stanovanj zgradili milijon le-teh. Poznajo pa tudi posebno stanovanjsko podporo za gospodinjstva brez otrok, ki je jasno namenjena olajšanju prehoda mladih iz gospodinjstva staršev v lastno gospodinjstvo in za katero lahko zaprosijo mladi med 18-im in 28-im letom starosti. Specifične bivalne razmere so značilne tudi za Nizozemsko, kjer se zapuščanje doma staršev spodbuja z visokimi subvencijami v obliki štipendij, stanovanj za študente in brezplačnim transportom.

Srednjeevropski ali konzervativen model ohranja statusne razlike. V ta model sodita predvsem Nemčija in Avstrija, pogojno tudi Belgija, Luksemburg in Švica, nekatere značilnosti pa se lahko pripišejo tudi Franciji. Gre za sistem, kjer je temelj sistema blaginje družina: sistem blaginje podpira družino v njeni podporni vlogi, kar pomeni, da naj bi mladi dobili podporo preko družinskih članov in ne neposredno od države. V teh državah so uveljavljeni trendi neposrednega prehoda iz doma v zakonsko zvezo, razmeroma pozno zapuščanje doma, pozno doseganje samostojnosti, visok vpis v nadaljnje izobraževanje in hitra pridobitev stanovanja na začetku kariere (po Ule in Kuhar, 2003, str. 88–91).

Prehodi v odraslost so si podobni v ZDA, Angliji in Kanadi. Te države uvrščamo v t. i. anglo-ameriški model. Vzorec zapuščanja doma obsega skupno življenje s prijatelji, nato kohabitacijo s partnerjem kateri sledi poroka (po Ule in Kuhar, 2003, str. 91–93). V postkomunistični model pa uvrščamo največ držav: osrednje vzhodnoevropske države (Češka, Madžarska, Poljska, Slovaška, Slovenija), baltske države (Estonija, Latvija, Litva), južne vzhodnoevropske države (Bolgarija, Makedonija, Romunija) neodvisne države Belorusijo, Moldavijo, Rusijo in Ukrajino ter ostale države bivše Jugoslavije. Vzhodnoevropske države so od padca socialističnega totalitarnega režima začele prehod od planske k tržni družbi in tranzicija se nanaša na drastične spremembe na vseh področjih življenja, saj so se države morale popolnoma reorganizirati. Spremembe v življenju so pustile sledi tudi v prehodih mladih v odraslost, tranzicija pa je privedla do naraščanja vpisa v nadaljnje izobraževanje, ekspanzije novih poklicev, socialne stratifikacije, neenakosti v dohodkih in brezposelnosti (po Ule in Kuhar, 2003, str. 93–96).

Kljub temu da zaradi vseh sprememb, ki so se zgodile v zadnjih treh desetletjih tako ne moremo govoriti o predvidljivem prehodu iz gotovega otroštva v gotovo odraslost s stabilno zaposlitvijo in na novo ustvarjeno družino, pa na podoben način tudi Walther s sodelavci (V: Lavrič in Flere,

2011, str. 64–65) na podlagi analiz prepoznava naslednjih pet modelov prehodov v odraslost, ki se v različnih družbah uresničujejo v različni meri na različne načine. To so:

- liberalni prehodni model značilen za anglosaksonske države (temelji na individualni odgovornosti mladih, da hitro in uspešno vstopijo na prožen trg dela, kar ima za posledico tudi veliko možnost socialne izključenosti, saj prožen trg poleg različnih zaposlitvenih možnosti pomeni tudi visoko stopnjo tveganja brezposelnosti),
- univerzalistični prehodni model značilen za nordijske države (temelji na obsežnem in prožnem izobraževalnem sistemu, ki združuje splošno in poklicno izobraževanje; mladi nad 18-im letom so vključeni v izobraževalni sistem in prejemajo poseben izobraževalni dohodek; aktivacijske politike omogočajo širok izbor delovnih mest in zagotavljajo individualno motivacijo),
- subprotektivni model značilen za sredozemske države (šibka povezava med izobraževanjem in trgom dela; prehodi so negotovi in lahko trajajo do sredine tridesetih let; mladi niso upravičeni do socialnih podpor, zato vlogo ti. socialnega blažilnika opravlja družina orientacije; zaradi odvisnosti od družin imajo mladi sorazmerno nizek družbeni status),
- k zaposlitvi usmerjen prehodni model, ki je značilen za celinske države kot so Avstrija, Nemčija in Francija (diferenciran šolski sistem, ki vključuje tog in visoko standardiziran sistem poklicnega izobraževanja; sistem mlade spodbuja, da se s praktičnim poklicnim usposabljanjem in izobraževanjem uspešno socializirajo za svoj poklicni in družbeni položaj; sistem mlade usmerja v delavnost),
- modeli posocialističnih držav (hitro spreminjajoči se modeli; države so podobne tistim s subprotektivnimi modeli prehoda, vendar so v teh državah zaradi socialistične preteklosti v različni meri prisotna univerzalistična jamstva družbenih položajev, povezanih predvsem s pričakovanji določene gotovosti zaposlitve).

Lavrič in Flere (2011, str. 66) nadalje ugotavljata, da se Slovenija pomika predvsem v smeri subprotektivnega modela. Gre namreč za »izrazito naraščanje opiranja mladih na družinske podpore (predvsem v smislu podaljševanja bivanja pri starših) ob izrazitem naraščanju vstopanja mladih v terciarno izobraževanje, za katero se zdi, da je predvsem povezano prav z možnostjo (vsaj začasnega) izboljšanja družbenega položaja in pridobivanja delne gmotne neodvisnosti s pomočjo študentskega dela. Vse to je tesno povezano z izrazitim upadanjem razpoložljivih stabilnih in dolgoročnih oblik zaposlitev za mlade. Priča smo izrazitemu

povečanju prožnosti trga dela za mlade, kar nas deloma približuje tudi liberalnemu modelu prehodov.«

Bivanje mladih in starih pa ni vedno pokazatelj dobrega medgeneracijskega sožitja in solidarnosti, ampak moramo upoštevati širši kontekst – skupek najrazličnejših procesov, ki uravnavajo življenje tako družbe kot tudi posameznikov. Walker (V: Grum in Temeljotov Salaj, 2016, str. 77) »celo trdi, da oblikovalci politik ne razumejo temeljnega pomena medgeneracijske solidarnosti, temveč ga dojemajo le kot finančno-rabni odnos. Meni, da razmišljanja in usmeritve, da so družbene investicije in izobraževanje predvsem za mlade, izhajajo iz stare paradigme družbe treh generacij. To pa lahko povzroča napetosti, saj s tem razdeljevalci javnih financ socialne države privilegirajo določene družbene skupine. Tako mlada kot stara generacija imata svoje potrebe, ki pa jih bo, še posebej v času upočasnjene gospodarske rasti, vse težje zadovoljiti iz virov socialne države.«

Medgeneracijska solidarnost je aktualna tako zaradi demografskih sprememb kot je staranja prebivalstva, kot tudi drugih, ki jih prinašajo novi kulturni in družbeni vzorci; spremenjena dinamika družinskih vezi pa vpliva na način življenja, vrednostne orientacije, norme in pričakovanja. Opredelimo jo lahko kot socialno povezanost med generacijami, ki se nanaša na odnose med ljudmi in na preiskovanje vezi, ki povezujejo posameznike s skupinami in skupine med seboj (Bengston in Oyama V: Hlebec et al., 2012, str. 7). »Družina kot temeljni mikrokozmos posameznika je namreč točka formiranja identitete in nastavkov za druge oblike družbenosti. Medgeneracijsko sodelovanje v družini je bilo v preteklosti temeljni način zagotavljanja vzajemne pomoči med generacijami in je bilo tako temelj medgeneracijske solidarnosti. Danes je medgeneracijska solidarnost tudi del javnega sistema blaginje (pokojninsko in zdravstveno zavarovanje), vendar solidarnost v privatni sferi vseeno ni izgubila svojega pomena in obsega. Z medgeneracijsko izmenjavo dobrin in virov (čas za druženje, skrb za obolele člane družine, finančna pomoč, skrb za vnuke, medgeneracijsko učenje) med različnimi generacijami v družini se dopolnjuje in podpira ter ohranja ravnovesje med finančno stabilnostjo in načeli socialne pravičnosti v javni sferi« (Hlebec et al., 2012, str. 5).

Ko medgeneracijsko solidarnost analiziramo in opazujemo na makro nivoju govorimo o javnem, sistemskem nivoju, ki se povezuje z delovanjem sistemov blaginje na ravni držav, saj je medgeneracijska solidarnost vgrajena v mnoge sisteme države blaginje: npr. pri pokojninskem sistemu na podlagi medgeneracijske solidarnosti finančni transfer potuje od

mladih in aktivnih k starejšim in neaktivnim s predpostavko, da bodo tudi oni sami, ko bodo v obdobju neaktivnosti, upravičeni do denarnih transferjev novih aktivnih generacij. Gre torej za obliko družbene pogodbe med generacijami, ki je v sodobnih sistemih blaginje najpomembnejši in hkrati najspornejši del sistemov blaginje. Vprašanje razmerja med generacijami je »eno ključnih za državo blaginje, saj velik del njenih programov pravzaprav prerazporeja denarne in druge vire med generacije (npr. otroške dodatke, porodniški dopust, otroško varstvo, pokojninsko zavarovanje, dolgotrajno oskrbo)« (V: Filipovič Hrast in Hlebec, 2015, str. 74). Prav te razporeditve pa z vidika pravične delitve virov in finančne vzdržnosti finančnih sistemov lahko postanejo problematične, saj trenutni demografski pritiski in spremenjena razmerja med generacijami kažejo na naraščajoče število starih z vse daljšo življenjsko dobo in upadajoče število mladih. Ob upoštevanju makro nivoja (torej povezava strukturnih, institucionalnih in kulturnih faktorjev s specifičnimi sistemi blaginje) pa je hkrati pomembno tudi opazovanje medgeneracijske solidarnosti na mikro nivoju (značilnosti družine) (po Filipovič Hrast in Hlebec, 2015, str. 74–75).

Sicer pa naj bi bili regulativni ukrepi in socialna pomoč s strani države pravično razdeljeni med mlado in staro generacijo. Kljub temu pa Kolaričeva (2011, str. 206, 221–222) opozarja, da naraščajoče neenakosti v moči in distribuciji pravic ter dolžnosti oz. prejemkov in prispevkov med generacijami pomenijo osnovo za nastanek medgeneracijskih konfliktov. Proces staranja prebivalstva in naraščajoči trend sta skrb vzbujajoča, zato jih številni politični akterji kot tudi strokovna literatura označujejo kot problematične, predvsem zaradi naslednjih dveh tez:

- nevarnost naraščajoče volilne in politične moči starejših, ki je/bo usmerjena proti spremembam in reformam, ki niso/ne bodo v skladu z njihovimi reformami,
- evropske socialne države oz. države blaginje pomenijo nevarnost za prihodnost evropskih družb, saj so pravice in prejemki preveč usmerjeni k starejšim in premalo k mlajšim generacijam, obveznosti in prispevki pa so preveč usmerjeni k delovno aktivnim generacijam, vendar nadalje navaja, da so teze predvsem v funkciji legitimiziranja tekočih reform evropskih držav blaginje, s katerimi se zmanjšujejo vse oblike solidarnosti v evropskih družbah, saj se te teze praviloma dokazujejo z argumenti, ki se nanašajo zgolj na odnose izmenjave med starostnimi skupinami, kot jih definira država blaginje.

Opozarja, da se »pri načrtovanju reform sistemov zagotavljanja socialne varnosti in blaginj ter evalviranju njihovih učinkov ne upošteva kompleksnega medsebojnega učinkovanja med:

- sistemsko solidarnostjo, ki poteka med starostnimi skupinami/kohortami, kot jih definira in regulira država blaginje (glede na pravice, ki jim jih priznava, in glede na dolžnosti, ki jim jih nalaga);
- solidarnostjo, ki poteka med generacijami znotraj skupnosti (v okviru družine, sorodstva, sosedstva);
- solidarnostjo/dobrodelnostjo, katere nosilke so civilnodružbene organizacije« (Kolarič, 2011, str. 206).

Upoštevajoč integralni pristop v analiziranju medgeneracijskih izmenjav se teza o medgeneracijskih konfliktih izkaže kot mit. Ne gre torej za konflikte ki ogrožajo prihodnost evropskih družb, temveč za prikrivanje dejanske posledice sedanjih reform evropskih držav blaginje oz. blaginjskih sistemov (po Arber in Attias-Donfut V: Kolarič, 2011, str. 206).

## 3 Pregled obstoječih raziskav

Sobivanje mladih in starejših oz. podaljšano sobivanje mladih pri svojih starših je aktualna tema, ki je v zadnjih letih pogosto obravnavana oz. raziskovana na večih področjih. Kot piše Mandičeva (2007, str. 7) je prehod iz stanovanja staršev v prvo samostojno stanovanje dogodek, ki je v sodobnem družboslovnem raziskovanju problematiziran na različnih področjih: »v sociologiji mladine kot vprašanje odraščanja (Jones, 1995; Clapham, 1999; Ule in Kuhar, 2003; Rener, 1996), v demografiji kot vprašanje nastajanja novih gospodinjstev (Avramov, 1995; Saraceno, in Olagnero, 2004), v stanovanjskih študijah kot vprašanje stanovanjske kariere (Clark in dr., 1994; Feijten in Mulder, 2002; Mulder, 2006), v analizah življenjskih potekov (Myers, 1990) kot součinkovanje dejavnikov z več področij.« Dejstvo je, kar potrjuje tudi mnogo raziskav in podatkov (npr. European Labour Force Survey 2007, 2013; European Values Study 2008; World Values Survey 2009, Eurostat 2012…) ter raziskave slovenske mladine, da Slovenija sodi v sam vrh evropskih držav, ko je govora o podaljšanem sobivanju staršev in t. i. mladih odraslih, pa tudi sicer raziskave kažejo, da mladi v Evropi vse pozneje dosegajo mejnike odraščanja (po Kuhar, 2013, str. 792–795). Med drugim so tudi te ugotovitve spodbudile nadaljnje primerjalne analize glede odhoda v prvo samostojno stanovanje med državami EU (Mandič, 2007), o stanovanjskem standardu in stanovanjskem statusu slovenskega prebivalstva (Mandič, 1999), o povezavi zaposlitve, stanovanja in razvojnih dilem sodobne družbe (Mandič, 2009a) idr. Veliko je povedanega tudi o dejavnikih oz. vzrokih za podaljšano sobivanje staršev in otrok (npr. Kuhar, 2013; Grum in Temeljotov Salaj, 2016), o reševanju stanovanjske

problematike mladih pa so bile že spisane diplomske in magistrske naloge (npr. Florjančič, 2007; Bitežnik, 2013; Miklavčič, 2016). Ko torej govorimo o različnih vplivih na podaljšano sobivanje mladih v skupnem gospodinjstvu s starši oz. predvsem o dejavnikih za podaljšano sobivanje, so znana predvsem mnenja in stališča mlajše, vpletene generacije, ni pa raziskano, kaj meni srednja aktivna generacija, kakšen je njihov pogled na stanovanjsko problematiko mladih, jih to sploh zanima, kako pomembni se jim zdijo različni dejavniki, ki vplivajo na podaljšano sobivanje (razvitost nepremičninskega trga, dostopnost kreditov za nakup stanovanj, razmere na trgu dela, slaba stanovanjska politika oz. državna pomoč, pomanjkanje neprofitnih stanovanj, vpliv subjektivnih dejavnikov ipd.). Zato se predvsem empirični del osredotoča na mnenja, odnose in stališča srednje aktivne generacije do nepremičninske problematike mladih oz. do reševanja stanovanjskega problema.

Prelaganje odraslosti pri slovenski mladini so sicer zabeležile že prve raziskave mladine v devetdesetih letih, ki jih je v okviru Centra za socialno psihologijo izvajala Fakulteta za družbene vede (Mladina 93, Mladina 95, Mladina 98, Mladina 2000). Gre za raziskave mladine, ki so bile izvedene na različnih mladinskih populacijah v Sloveniji. »Na podlagi vsake izmed teh raziskav so izšle znanstvene monografije, in sicer: Pri(e)hodnost mladine (Ule, Miheljak, 1995), Predah za študentsko mladino (Ule, Rener, Miheljak, Kurdija, Mencin Čeplak, 1996), Socialna ranljivost mladih (Ule, Rener, Mencin Čeplak, Tivadar, 2000) in Mladina 2000 (Ule, Kuhar, Rener, Miheljak, Mencin Čeplak, Tivadar, Kamin, 2002)« (Ule in Kuhar, 2003, str. 97).

Raziskava Mladina 93 je bila izvedena na reprezentativnem vzorcu srednješolske populacije in je pomenila prvo resnejšo raziskavo mladostniške populacije v času velikih družbeno-ekonomskih sprememb v Sloveniji. Raziskava se je metodološko navezovala na raziskavo slovenske in jugoslovanske mlade populacije iz leta 1985 ter na Shellove raziskave nemške mladine. Vsebinska področja so se navezovala predvsem na odnos do mladosti, ocenjevanje družbenega položaja mladih, vrednote mladih, njihove osebnostne lastnosti in demografijo (po Ule in Miheljak, 1995, str. 8–9, 185–212). Življenjske stile in vrednote študentske mladine je analizirala tudi raziskava Mladina 95, katere cilj je bil preučitev prilagoditev študentske populacije v Sloveniji na družbene in življenjske razmere v državi – med drugim osebnostne tranzicije v odraslost (po Ule et al., 1996, str. 8–10). Interpretacija odgovorov mlade generacije na serijo tranzicij in z njimi povezanimi težavami je prav tako glavni cilj raziskave Mladina 98. Slednja namreč obravnava nasprotja in težave s katerimi se soočajo mladi, le-ta pa povečujejo socialno in psihološko ranljivost mladih v Sloveniji (po Ule et al., 2000, str. 9–14). Namen

raziskave Mladina 2000 pa je bil ilustrirati splošno podobo mlajše generacije – za tematiko, ki jo obravnava magistrsko delo, so pomembni predvsem rezultati oz. ugotovitve glede odnosa mladih do staršev ter ocenjevanje problemov mladih (glej Ule et al., 2002).

Skupna vsem omenjenih raziskavam pa je ugotovitev, da so za mlade odrasle značilni močno spremenjeni vzorci vstopanja v lastno družinsko skupnost ter prelaganje odraslosti. Vsem so namreč skupni naslednji trendi:

- podaljševanje bivanja v izvornih družinah oz. vse poznejši prehod iz družine staršev v lastno družino,
- zmanjševanje družbenega pomena in statusa poroke in formalizirane zakonske zveze,
- naraščanje t. i. poldružinskega življenja oz. LAT faze,
- načrtovano in odgovorno starševstvo, ki ga mladi čutijo kot odgovorno in skrbno načrtovano življenjsko nalogo (po Ule in Kuhar, 2003, str. 97).

Ena izmed (naj)pomembnejših raziskav, ki obravnava tudi bivanjske in stanovanjske razmere mladih pa je prav gotovo Mladina 2010: Družbeni profil mladih v Sloveniji. Raziskava je bila utemeljena na združitvi treh metod zbiranja družboslovnih podatkov (anketa, intervjuji z značilnimi predstavniki mladih, zbiranje in analiza sekundarnih podatkov), pri čemer je najobsežnejši del raziskovanja temeljil na anketi mladih v Sloveniji. Njen splošni namen je bil osmisliti pomen ustrezne mladinske politike in mladinskega dela, izsledki raziskave pa so pomembni tudi zato, da bi nacionalni program za mlade določil ustrezne strateške cilje, ki bodo znanstveno utemeljeni. Gre torej za celovito raziskavo o slovenski mladini, ki je glede na demografska gibanja še kako aktualna.

Življenjski pogoji in socialno-ekonomski položaj mladih, njihovo zaposlovanje in mobilnost, prosti čas in življenjski slogi, izobraževanje, odnosi v družini pa so le nekateri poudarki raziskave Mladina 2013: Življenje v času simonettideziluzij, tveganja in prekarnosti. Tudi ta raziskava je pokazala, da je delež mladih v skupnem gospodinjstvu s starši še vedno nad evropskim povprečjem, kljub ugotovitvi, da se delež sobivanja nekoliko znižuje, saj je Slovenija po podatkih Eurostata zdrsnila iz drugega na peto mesto v EU-28 (po Mladina 2013, 2014, str. 5).

Pri obravnavani tematiki pa je ključno tudi poznavanje in razumevanje stanovanjske politike, torej poseganje države na stanovanjsko področje. Po pregledu literature in opravljenih analiz

(npr. Sendi, 2007) lahko trdimo, da je (bila) država pri posluževanju različnih instrumentov stanovanjske politike (npr. finančne spodbude ipd.) ter pri uresničevanju začrtanih ciljev le-te v splošnem neuspešna, saj se izpostavljajo številne slabosti in pomanjkljivosti.

Nilsson in Strandth (V: Mandič in Gnidovec, 2000, str. 54–56) nadalje navajata naslednje sklope dejavnikov, ki vplivajo na čas in destinacijo prehoda in stanovanja staršev v prvo samostojno stanovanje:

- strukturni dejavniki: za posameznika pomenijo družbeno danost, saj nanje nima vpliva; zgodovinske družbene okoliščine (demografske spremembe kot so večanje števila samskih gospodinjstev in odloženo starševstvo); okoliščine na stanovanjskem trgu (razpoložljivost stanovanj, dostopnost cenejših najemnih stanovanj in stanovanjskih posojil);
- osebne preference: osebne značilnosti, identiteta, življenjski slog, vrednote;
- posameznikovi viri: znanje, socialni kapital, vključenost v družbena omrežja, zdravje, finančni viri, zaposlitev oz. plačano delo, izobraževalna situacija idr.;
- stanovanjske razmere v domu staršev: ta dejavnik ni med najpomembnejšimi, vendar raziskave kažejo, da mladi zapustijo dom staršev prej, če je le ta majhen oz. imajo slabše stanovanjske razmere;
- partnerstvo: partnerski odnos je povezan s kohabitacijo, delitev stanovanjskih stroškov;
- spol: raziskave kažejo, da mlade ženske zapustijo starševski dom prej kot moški, odhod je pri mladih moških tesneje povezan z viri staršev in družinsko situacijo.

Medtem ko npr. Kuharjeva (2013, str. 795) kot ključne razloge za podaljševanje medgeneracijskega sobivanja (v Sloveniji) navaja majhno število finančno dostopnih stanovanj (nezadostna stanovanjska ponudba in visok delež lastniških stanovanj); trg dela, ki ne more dovolj hitro absorbirati visoko izobraženih mladih (priliv novih diplomiranih oseb presega ponudbo sproščenih delovnih mest) ter kulturno določeno prakso, ki je povezana s širšimi dejavniki strukturne oz. institucionalne narave, zlasti z dostopnostjo državnih podpor nasproti družinskim (emotivni, prijateljski, demokratični družinski odnosi), pa Mandičeva (2007, str. 7–11) podobno kot Nilsson in Strandth izpostavlja individualne in strukturne dejavnike. Med prve uvršča značilnosti posameznikov (poklicni, zaposlitveni in dohodkovni položaj posameznika, partnerstvo in starševstvo, spol in osebne izbire). Le-ti namreč pomagajo pojasniti kaj posameznike znotraj dane družbe žene k različnim izbiram in potem. Med strukturne dejavnike pa sodijo značilnosti okolja, ki pojasnjujejo zakaj posamezniki v isti družbi sledijo podobnim

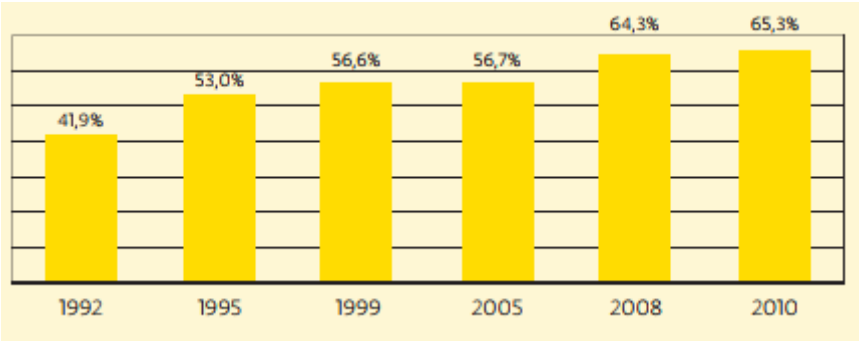
vzorcem odhoda od doma in zakaj se ti vzorci med državami razlikujejo (režim blaginje, delovanje trga delovne sile, razpoložljivost stanovanj in kulturne vzorce družb).

Tudi podatki SURS-a iz leta 2002 ponazarjajo vse daljše bivanje otrok s svojimi starši. Pregled podatkov po regijah je pokazal, da s starši najdlje ostajajo prebivalci zahodne Slovenije, saj jih ima v starosti 25–29 let kar 60 % še vedno status otroka, najprej pa dom staršev zapustijo mladi iz koroške in zasavske regije. Razloge gre med drugim iskati tudi v trajanju šolanja, možnostih zaposlovanja, stanovanjskih razmerah, kulturnih navadah in dostopnosti do novih stanovanj (po Šircelj in Žnidaršič, 2005, str. 52).

Raziskava European Labour Force Survey iz leta 2007, iz katere izhaja Kuharjeva (2013, str. 792–794) pri analizi dejavnikov podaljšanega sobivanja staršev in otrok v Sloveniji, kaže, da je Slovenija glede skupnega bivanja na drugem mestu v Evropi (za Slovaško); moški v povprečju odidejo iz doma staršev pri 31,5 letih, ženske pa pri 29,5 letih, kar je bistveno več od povprečne starosti na ravni celotne Evropske unije, tj. 25 let.

Najbolj zgovoren pa je podatek iz raziskave Mladina 2010 (oz. primerjava z raziskavo Mladina 2000): delež mladih med 25-im in 29-im letom, ki živijo v skupnem gospodinjstvu z materjo, se je v obdobju 2000-2010 povečal s 45,4 na 66,8 %. Spodnji grafikon pa ponazarja visok odstotek mladih med 25-im in 29-im letom, ki še vedno živi v gospodinjstvu skupaj s svojimi starši.

Graf 1: Delež mladih med 25-im in 29-im letom, ki živijo v gospodinjstvu skupaj s starši, 1992–2010.




Vir: Lavrič in Klanjšek, 2011, str. 348.

Anketiranci so v anketi Mladi, družina, starševstvo, izvedeni v letu 2002 navajali naslednje razloge za podaljševanje bivanja doma pri starših:

Tabela 1: Poglavitni razlogi za podaljšano sobivanje, seštevek treh navedb.

| **Seštevek treh navedb** | **v %** |
|---|---|
| Ker so mladi dalj časa materialno odvisni od staršev. | 58,4 |
| Ker nimajo rešenega stanovanjskega problema. | 52,4 |
| Ker je to najbolj poceni nastanitev. | 41,6 |
| Ker je življenje pri starših udobnejše in brez odgovornosti. | 35,3 |
| Ker se mladi vse kasneje odločajo za skupno življenje s partnerjem/ko. | 31,5 |
| Ker želijo varčevati in si omogočiti dober začetek z lastno družino. | 24,1 |
| Ker kasneje pridejo do stabilne partnerske zveze. | 16,4 |
| Ker je življenje pri starših udobnejše, saj imajo mladi obilo obveznosti in jim primanjkuje časa. | 16,4 |
| Ker življenje pri starših ni več omejeno s pravili. | 4,9 |
| Mladi ostajajo doma zaradi zaupanja in pristnih prijateljskih vezi s starši. | 8,4 |
| Drugo. | 3,5 |

Vir: Ule in Kuhar, 2003, str. 102.

Podobno ugotavlja tudi Kolenčeva (2008, str. 210–211), ki z anketo med študenti zdravstvene nege Visoke šole za zdravstvo ugotavlja, da so med najpogostejšimi razlogi za podaljšano sobivanje nerešen stanovanjski problem, daljša materialna odvisnost in kasnejša odločitev za skupno življenje s partnerjem. Anketiranci izpostavljajo torej predvsem objektivne dejavnike, medtem ko so subjektivnim dejavnikom (zaupanje in pristne prijateljske vezi) pritrdili najmanj pogosto.

Na podlagi rezultatov raziskave Mladina 2010 so dejavniki oz. razlogi za odlaganje odselitve od doma (po vrstnem redu ocenjene pomembnosti) za Slovenijo sledeči (po Lavrič in Klanjšek, 2011, str. 350–365):

1. Materialni dejavniki - redna zaposlitev, dohodek, cene stanovanj in najemnin so ključni dejavnik poznega odseljevanja mladih:

- delež redno zaposlenih mladih (za polni delovni čas) v starostni skupini 15 do 29 let je v letu 2010 znašal (le še) 28,5 odstotka,

- mladi (kljub zaposlitvi) pogosto ostanejo doma, če starši živijo v hiši in se ne soočajo s prostorsko stisko,
- vpliv dohodka (npr. 1000 € in več – delež živečih pri starših se bistveno zmanjša)
- kljub željam za nakup lastnega stanovanja ali financiranje hiše ni realnih možnosti:, saj prevladujejo najemniška stanovanja in stanovanja, ki so v lasti staršev mladih oz. staršev njihovih partnerjev (tisti mladi, ki so lastniki stanovanja, so do njega prišli predvsem z dedovanjem (48,7 %) ali s posojilom (32,9 %)),
- na pomen materialnih dejavnikov kaže neskladje med željami in realnostjo glede odselitve: v starosti 15–18 let se 92,1 odstotka mladih želi odseliti od doma do 29-ega leta starosti, na drugi strani pa jih pri 29-ih letih le 31,6 odstotka živi povsem ločeno od staršev.

2. Bivanje pri starših je ugodno:

- Slovenija je po kakovosti odnosov med otroki in starši v samem vrhu evropskih držav, saj je med vsemi anketiranimi 84,5 odstotkov anketirancev svoje odnose z materjo ocenilo kot dobre ali zelo dobre, ko gre za očeta je ta delež 76,4 odstoten,
- mladi doma staršev ne zapuščajo zaradi slabih odnosov, saj se mladi po odselitvi od staršev v svojem novem domu v povprečju ne počutijo nič bolje, torej bivanje pri starših za mlade v čustvenem smislu ne pomeni bistvene prikrajšanosti.

3. Kulturni dejavnik – tveganje revščine: po nekaterih podatkih (npr. Eurobarometer 2010) imamo v Sloveniji nizek tolerančni prag glede revščine oz. nizko strpen kulturni vzorec, zato se lahko pozno odseljevanje razloži tudi s tem, da mladi dajejo prednost domači stabilnosti in ugodju oz. so previdni pri odseljevanju od staršev (ne želijo tvegati možnosti, da gredo na slabše).
4. Majhnost Slovenije in ustrezna cestna infrastruktura: majhnost države z razmeroma dobro cesto infrastrukturo mladim omogoča dnevne migracije na delo in izobraževanje, nizka potreba po mobilnosti, ni preseljevanja mladih iz podeželja v mesto (dobrih 91 odstotkov mladih se v šolo ali na delo vozi z avtom, avtobusom ali vlakom, v povprečju se slovenski mladi na delo ali v šolo vozijo 22 km daleč).
5. Podaljševanje obdobja vključenosti v izobraževalni sistem: kljub temu, da je Slovenija po vključenosti mladih v izobraževanje v samem vrhu evropskih držav, pa so rezultati Mladina 2010 tu pokazali presenetljivo sliko, saj se ta vključenost ne kaže kot pomembne dejavnik podaljševanja obdobja bivanja pri starših. Mladi, ki so študirali so v povprečju od doma odšli prej kot njihovi manj izobraženi vrstniki (razlog: bolj izobraženi prejemajo višji dohodek in so bolj usmerjeni v prihodnost).

6. Mladim ustreza partnersko življenje po sistemu »skupaj in narazen«: delež mladih, ki živi skupaj v partnerski zvezi se je zmanjšal.
7. Psihološke poteze mladih niso značilno povezane z odselitvijo: podatki raziskave ne potrjujejo teze, da je naraščanje povprečne starosti, pri kateri mladi zapuščajo dom, povezano s hedonizmom in nepripravljenostjo mladih na sprejemanje odgovornosti (mladi, ki pozneje odhajajo niso nič bolj usmerjeni v uživanje, zabavo, razvedrilo, lenarjenje, spolnost ipd.).

Avtorja pa navajata še naslednje ugotovitve: poleg zaostrovanja strukturnih pogojev je pomembne dejavnik podaljševanja bivanja pri starših tudi naraščajoča permisivnost socializacije, iz razpoložljivih virov pa sklepata tudi, da je napredovanje digitalnih in komunikacijskih tehnologij v zadnjem desetletju pripomoglo k večji privlačnosti odločitve za bivanje v skupnem gospodinjstvu s starši, saj je družbeno življenje mladih, ki živijo doma občutno bolj virtualizirano (po Lavrič in Klajnšek, 2011, str. 358, 370).

Na težke ekonomske pogoje (primer ZDA, od leta 1960 do leta 2011), ki vplivajo na podaljšano sobivanje oz. prisilijo mlade k življenju v večgeneracijskih gospodinjstvih, saj si ne morejo privoščiti samostojnega življenja, opozarja tudi Matsudaira (2016, str. 168). Posebej velik porast podaljšanega sobivanja je opaziti po letu 2000, saj se je je stopnja doma živečih mladih v 11-ih letih povečala več kot prej v 40-ih letih (1960–2000). Nepremičninski stroški najbolj prizadenejo prav mlade med 24-im in 30-im letom, zato se ob slabši ekonomski situaciji tudi pogosto zatečejo (nazaj) k staršem, spremembe na trgu dela in na nepremičninskem trgu pa občutijo tudi ljudje med 30-im in 34-im letom. Raziskava je pokazala, da je glavni razlog, da mladi odrasli sobivajo s svojimi starši, lažja prilagoditev spreminjajočim se ekonomskim razmeram (po Matsudaira, 2016, str. 186, 192-193). Raziskava, ki so jo izvedli Aassve, Cottini in Vitali (2013, str. 4–7), je pokazala, da se je med letoma 2007 in 2010 delež mladih, ki ostanejo doma, povečal v večini evropskih držav, predvsem v starostni skupini 18–24 let, celo v državah, ki so sicer znane po zgodnjem odhodu otrok od doma. Kot enega ključnih dejavnikov za tovrstno stanje navajajo dejstvo, da je nedavna ekonomska kriza še posebej močno prizadela mlade, saj je brezposelnost med mladimi poskočila, nizki prihodki pa posledično onemogočajo vstop v ekonomsko neodvisnost. Posledice pa niso le enkratne, pač pa negativni vplivi recesije prinašajo dolgoročne posledice na prehod v odraslost celotne generacije mladih ljudi.

Vplive na podaljšano sobivanje mladih v skupnem gospodinjstvu s starši, z raziskavo v treh različnih kulturnih okoljih (Japonska, Srbija in Slovenija), analizirata tudi Grum in Temeljotov Salajeva (2016, str. 76). Rezultati so pokazali, da mladi pričakujejo večjo pomoč države, ki bi vodila pravično in mladim družinam prijaznejšo stanovanjsko politiko, hkrati pa se, kljub dobrim odnosom s starši, želijo osamosvojiti. Tako so na Japonskem finance glavna ovira pri vzpostavitvi novega gospodinjstva, poznejši odhod pa je povezan tudi z gospodarsko recesijo in širšo neoliberalistično globalizacijo (Izahura V: Grum in Temeljotov Salaj, 2016, str. 77). Za Srbijo pa je značilno da mladi povezujejo prehod v lastno gospodinjstvo z ustvarjanjem družine in ne toliko z neodvisnim življenjskim slogom; kot druge predpogoje pa navajajo še dober dohodek, delovno mesto in dosegljivost lastnega stanovanja. Mladi svojega odhoda ne vidijo kot konec življenjskega sloga, odvisnega od staršev, temveč kot predpogoj za prehod v odraslost (Grum in Temeljotov Salaj, 2016, str. 79).

## 4 Metodologija

V prvem delu smo s pomočjo metod deskripcije in kompilacije podrobno proučili znanstveno in strokovno literaturo, ki se z različnih aspektov navezuje na problematiko podaljšanega sobivanja staršev in mladih odraslih. Pri tem smo izhajali iz teoretičnih prispevkov različnih avtorjev in povzeli temeljne ugotovitve že izvedenih raziskav s področja obravnavane tematike. Za primerjavo različnih teoretičnih konceptov, mnenj in izhodišč smo uporabili tudi metodo komparacije. Raziskovalni del temelji na statistični analizi podatkov, pridobljenih s pomočjo spletnega anketiranja v okviru odprtokodne aplikacije 1KA, ki omogoča izdelavo spletnega vprašalnika, izvedbo spletne ankete in urejanje ter prikaz osnovnih značilnosti podatkov. Pri sestavi vzorca smo uporabili specializirani tip vzorčenja, ki temelji na t. i. principu snežne kepe, pri katerem »se na začetku izbere manjši vzorec oseb, ki odgovarjajo na vprašalnik, obenem pa k izpolnjevanju povabijo svoje znance« (Klinc, Turk, Dolenc V: Grum in Temeljotov Salaj, 2011, str. 101). Na ta način vsak naslednji anketiranec zagotovi nekaj novih respondentov: prednost tako predstavlja hitro popolnjevanje vzorca, vendar je le-ta odvisen samo od začetne izbrane skupine anketirancev, kar pa predstavlja tudi slabost, saj nad njim po začetnem izboru nimamo več nadzora (po Grum in Temeljotov Salaj, 2011, str. 101).

Anketni vprašalnik je sestavljen iz dveh delov. V prvem so anketiranci odgovarjali na temeljna demografska vprašanja, kot so spol, starost, izobrazba ipd., v drugem pa so se opredeljevali do različnih trditev, oblikovanih na podlagi pregleda strokovne literature in do sedaj opravljenih

raziskav, s čimer smo merili njihova stališča do proučevane tematike. Pri obdelavi zbranih podatkov smo si pomagali s statističnim programom SPSS[2], pri čemer smo uporabili ustrezne procedure, relevantne za izbrane statistične metode, za izdelavo tabel in grafikonov pa program Excel in že omenjeno on-line platformo 1KA spletna anketa. Izbor uporabljenih statističnih metod je odvisen od zastavljenih hipotez oziroma od spremenljivk, ki smo jih uporabljali pri njihovem testiranju. Za intervalne spremenljivke (trditve, do katerih so se anketiranci opredeljevali na petstopenjski Likertovi lestvici, kjer 1 pomeni »sploh se ne strinjam« in 5 »zelo se strinjam«), smo izračunavali opisne mere in uporabljali tabelarični prikaz s frekvencami možnih odgovorov, skupaj s pripadajočimi relativnimi deleži. Kjer je bilo to vsebinsko smiselno, smo uporabili tudi metodo statističnega sklepanja in sicer tako statistično preizkušanje domnev (preizkus domneve o vrednosti aritmetične sredine in preizkus skupin) kot tudi izračunavanje intervalov zaupanja. V okviru Hipoteze 1, kjer smo proučevali pomembnost različnih dejavnikov sobivanja, smo analizirali tudi zanesljivost vprašalnika s pomočjo Cronbachovega koeficianta alfa, ki izraža notranjo konsistentnost posameznega sklopa vprašanj.

Cilji kvantitativne empirične raziskave pa niso samo deskriptivni (opis značilnosti oziroma stanja), ampak tudi eksplanativni (ugotovitev in pojasnitev medsebojnih odvisnosti) (glej Nahtigal in Grum, 2015, str. 123). Tako smo pri proučevanju povezanosti opisnih spremenljivk uporabili kontingenčno tabelo s pripadajočimi relevantnimi strukturnimi odstotki in izvedli Pearsonov hi-kvadrat test, v primeru intervalnih spremenljivk pa je bila izhodišče za proučevanje medsebojne odvisnosti korelacijska matrika.

V prvem delu so bile raziskovane demografske spremenljivke, kot so spol, starostne kategorije, izobrazba, dohodek, zaposlitveni status, tip stanovanja ipd., v drugem delu pa so spremenljivke, s pomočjo katerih smo merili stališča anketirancev do proučevane tematike. Vprašanja so bila oblikovana (oz. delno povzeta in prilagojena glede na obravnavano tematiko oz. drugačno starostno skupino respondentov) na podlagi pregleda literature in do sedaj opravljenih raziskav.

[2] Pri delu s statističnim programom SPSS so nam bila v pomoč predvsem naslednja dela: Kropivnik, S., Kogovšek, T. in Gnidovec, M.: Analize podatkov z SPSS-om 12.0: predavanja in vaje (2006); Rovan, J. in Turk, T.: Analiza podatkov s SPSS za Windows (2012); Šuster Erjavec, H. in Južnik Rotar, L.: Analiza podatkov s SPSS (2013); Rogelj, R. in Marinšek, D.: Statistična analiza: Zbirka rešenih primerov s komentarji (2014).

Pri sestavi vprašalnika so nam za osnovo služile sledeče raziskave:

- Mladina 2000: Slovenska mladina na prehodu v tretje tisočletje – teme: emocionalna in instrumentalna starševska podpora, mejniki odraščanja, razumevanje s starši, odnos do družine (glej Miheljak, 2000, e-vir),
- Stanovanjska anketa 2005: razvojno-raziskovalni projekt – teme: stanovanje, kakovost življenja, stanovanjske razmere (glej Mandič, 2005, e-vir),
- Mladina 2010: Družbeni profil mladih v Sloveniji – teme: zaposlenost, stanovanjske razmere, odnosi s starši, vloga družine (glej Lavrič, 2010, e-vir),
- Slovenska Mladina 2013: Življenje v času deziluzij, tveganja in prekarnosti – teme: socialno-ekonomski položaj mladine, izobraževanje, partnerstvo, zaposlenost, stanovanjske razmere, materialni položaj gospodinjstva, odnosi s starši, vloga družine (glej Flere, 2013, e-vir);

ter predvsem naslednja dela (oz. članki, analize, izsledki raziskav):

- Srna Mandič: Odhod v prvo samostojno stanovanje: primerjalna analiza med državami EU (2007),
- Metka Kuhar: Analiza dejavnikov podaljšanega sobivanja staršev in otrok v Sloveniji (2013),
- Bojan Grum in Alenka Temeljotov Salaj: Medgeneracijsko sobivanje mladih in starih: medkulturna primerjava (2016).

Zbiranje podatkov oz. reševanje anketnega vprašalnika je potekalo preko spleta. Vprašalnik je bil poslan prijateljem in znancem (v starosti 40–61 let) po elektronski pošti: v sporočilu je bila navedena povezava, ki je vodila do pripravljene spletne ankete; povezava pa je bila objavljena tudi na družbenem omrežju Facebook. Da smo pridobili čim večje število ustreznih respondentov, smo uporabili metodo snežne kepe oz. vzorčenje preko socialnih mrež. Anketiranci so bili naprošeni, da k reševanju ankete povabijo tudi svoje znance (v starosti 40–61 let) oz. delijo povezavo do ankete tudi na svojih profilih (omrežje Facebook): tako naj bi vsak naslednji anketiranec zagotovil nekaj novih anketirancev (glej Grum in Temeljotov Salaj, 2016, str. 79). Pri oblikovanju vzorca smo torej uporabili neverjetnostno vzorčenje, tako da le-ta ni reprezentativen za celotno populacijo oseb, ki predstavljajo srednjo aktivno generacijo. Kljub temu pa lahko z vidika statističnega testiranja zastavljenih hipotez predpostavimo, da je vzorec reprezentativen za tisti del populacije, ki ima podobne socio-demografske značilnosti (glej Nahtigal in Grum, 2015, str. 124).

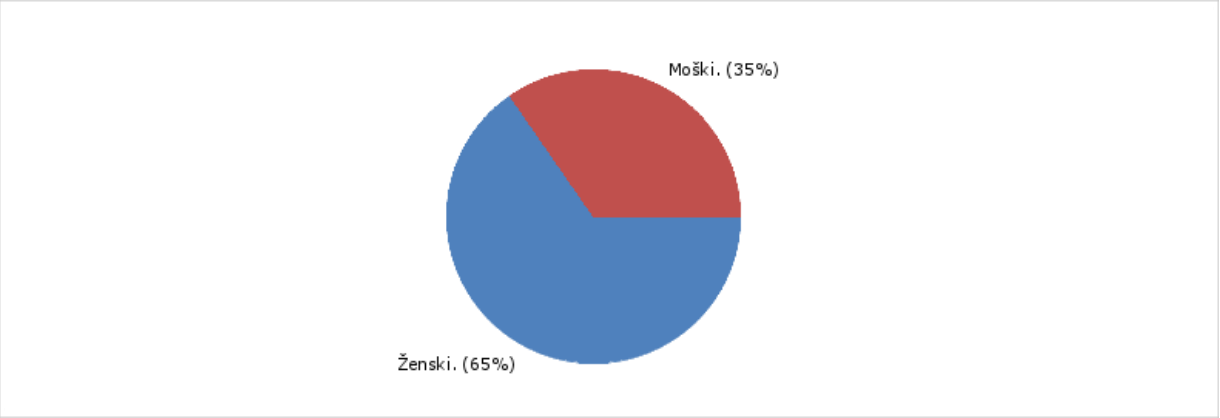
Pri obliki anketnega vprašalnika je bistvena primerna struktura, saj neprimerno oblikovana vprašanja, napačen oz. nesmiseln vrstni red, napačne lestvice vrednotenja lahko povzročijo, da so rezultati nerelevantni, vprašanja pa anketirancem nerazumljiva (po Bethlehem in Biffignandi, 2012, str. 191–192). Ravno zato je smiselno predhodno testiranje, na manjši skupini ljudi, ki sodijo v obravnavan vzorec.

Prvi osnutek vprašalnika smo testirali na manjšem vzorcu kandidatov, ki spadajo v obravnavano skupino. Na ta način smo dobili vpogled v razumevanje samih vprašanj; na podlagi ugotovitev pa smo popravili določene pomanjkljivosti in nejasnosti, ki so anketirancem povzročala težave. Drug del testiranja pa smo izvedli v sami aplikaciji 1KA (za izvedbo spletnih anket). Po testnem vnosu nam je program javil (morebitne) napake (preverjanje pogojev, kalkulacij in zank; preverjanje validacij na spremenljivkah; preverjanje podvojenosti imen variabel), opozorila (število vprašanj na stani; število vprašanj v bloku; število podvprašanj v tabeli; neprimerna vprašanja na začetku ankete) ter podal določena priporočila (opozorila, možnosti krajšanja vprašalnika). Testni vnos ankete je bil ocenjen kot srednje dolga anketa, z ovenjenim trajanjem reševanja približno 9 minut (po EnKlikAnketa – 1KA spletne ankete, e-vir).

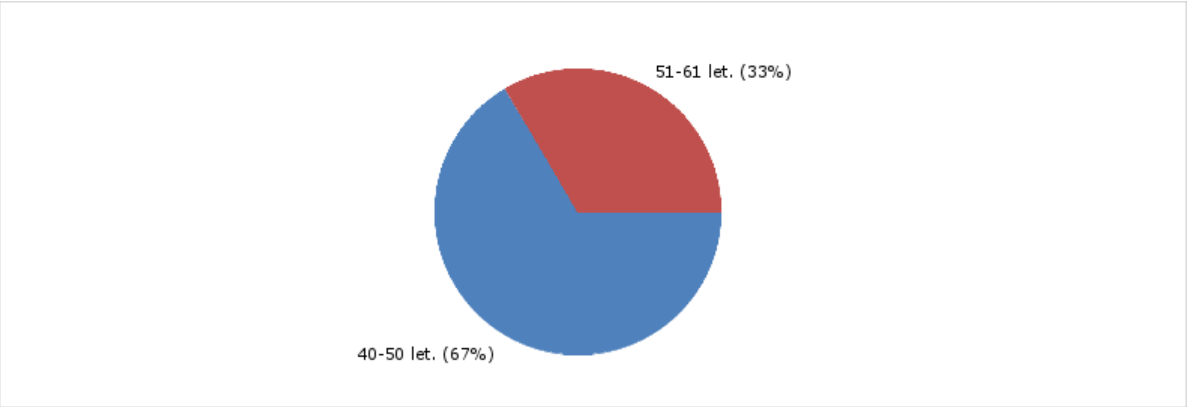
Anketa je bila aktivna od 4. avgusta 2017 do 29. avgusta 2017. Skupno smo pridobili 208 ustreznih anket, od tega 192 končanih in 16 delno izpolnjenih. Skupno število zabeleženih enot v bazi (torej dejanskih klikov na samo anketo) pa je bilo bistveno več, 988. Tolikšno število neustreznih anket (780), pripisujemo dejstvu, da je veliko število posameznikov povezavo do ankete delilo (oz. razposlalo) brez pojasnila, da je anketa namenjena samo tistim med 40-im in 61-im letom starosti, saj nam stopnje odgovorov oz. kumulativni status pri pregledu statusa ankete (v programu 1KA) pokaže, da je bilo klikov na nagovor bistveno več, kot je bilo v nadaljevanju dejansko izpolnjenih vprašalnikov. Tudi podatki glede samih preusmeritev klikov na anketo so pokazali, da se je velika večina na reševanje ankete odzvala preko Facebook omrežja.

V nadaljevanju bomo predstavili glavne demografske spremenljivke. Struktura vzorca glede na spol in starostne kategorije je tako sledeča: anketo je rešilo 65 % žensk in 35 % moških; 67 % jih spada v starostno kategorijo 40–50 let, 33 % pa v starostno kategorijo 50-61 let.

Graf 2: Anketiranci po spolu (v %), n = 208.

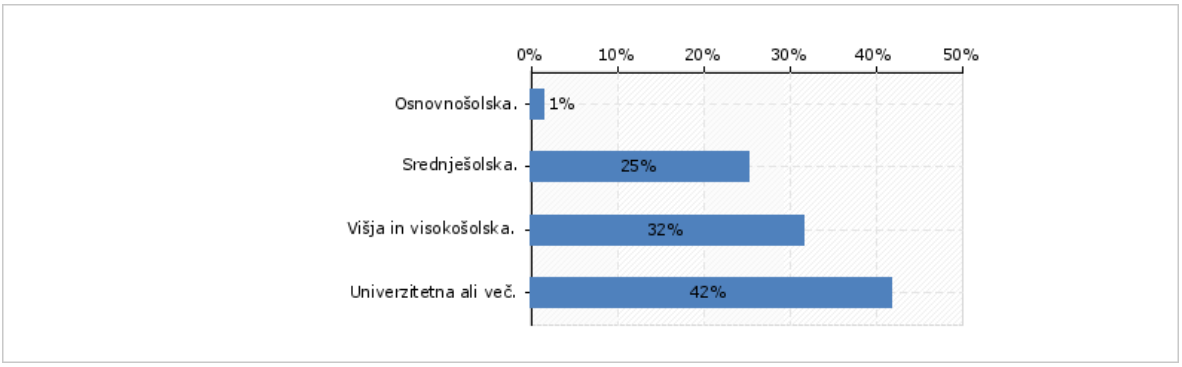



Graf 3: Anketiranci glede na starostne kategorije (v %), n = 203.



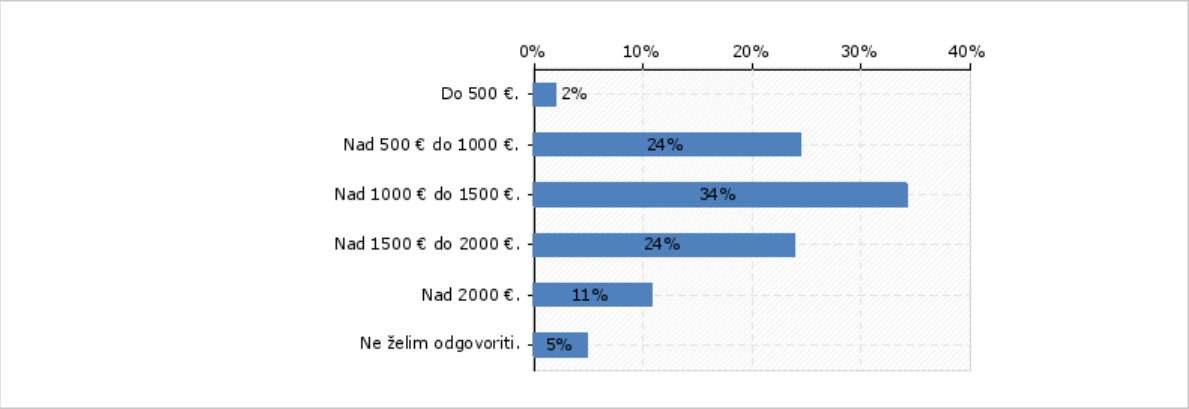

Nadalje smo ugotovili, da je stopnja izobrazbe anketirancev visoka: kar 42 % ima univerzitetno (ali več) stopnjo izobrazbe, sledijo tisti z višjo ali visokošolsko izobrazbo (32 %), nato tisti s srednješolsko (25 %), le 1 % (oz. 3-je anketiranci) pa je tistih z osnovnošolsko izobrazbo.

Graf 4: Najvišja dosežena stopnja izobrazbe (v %), n = 206.



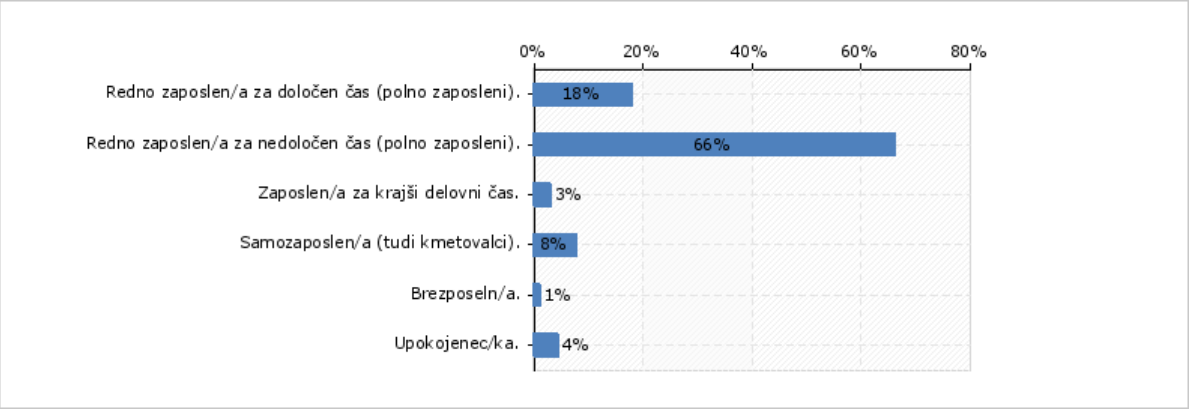
Anketirance smo spraševali tudi po mesečnem neto dohodku: do 500 € dohodka imata 2 % anketirancev, nad 500 € do 1000 € 24 %, največ – 34 % prejema med 1000 € in 1500 €, 24 % ima nad 1500 € do 2000 € neto mesečnega dohodka, nad 2000 € 11 %, 5 % pa na vprašanje ni želelo odgovoriti.

Graf 5: Mesečni neto dohodek (v %), n = 205.



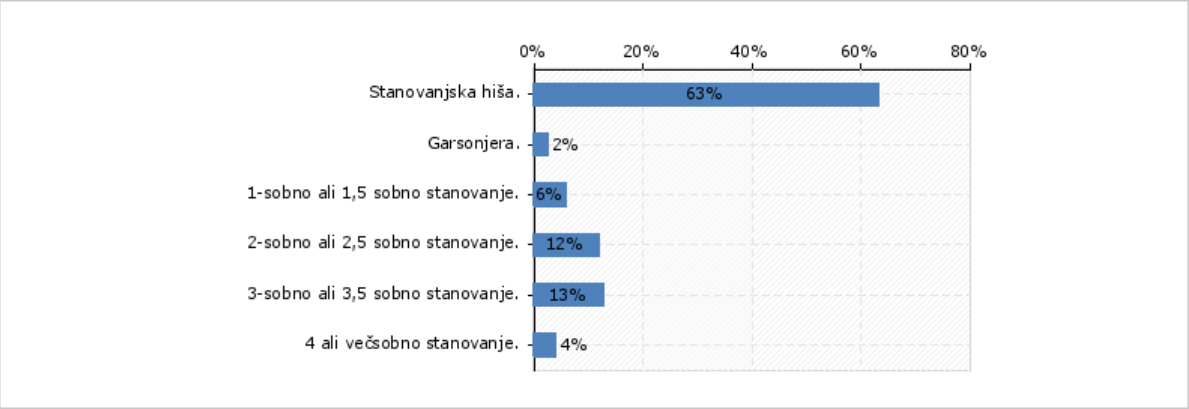

66 % anketirancev je polno zaposlenih za nedoločen čas, 18 % ima pogodbe za določen čas, 3 % pa so zaposleni za krajši delovni čas. Med anketiranci je še 8 % samozaposlenih, 4 % upokojencev ter odstotek brezposelnih.

Graf 6: Trenutni zaposlitveni status (v %), n = 207.



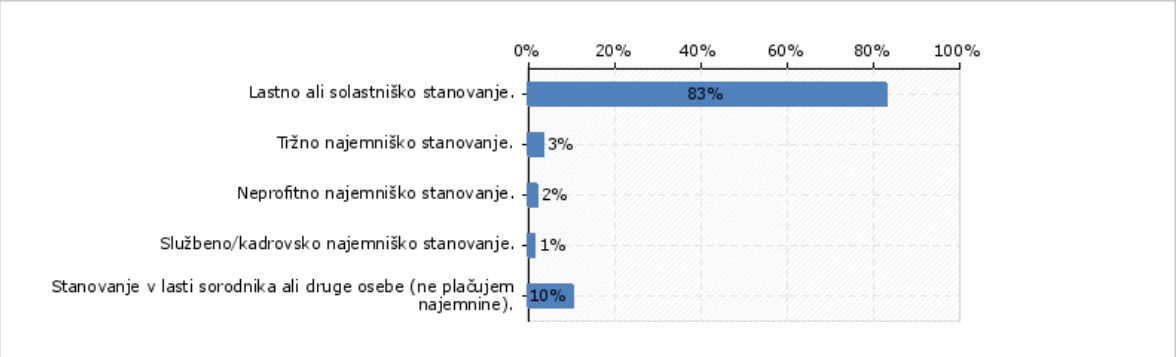

Med anketiranci prevladujejo tisti, ki živijo v stanovanjski hiši (63 %) ali v večjem stanovanju (2-sobno ali 2,5 sobno stanovanje 12 % in 3-sobno ali 3,5 sobno 13 %). V 1-sobnem ali 1,5 sobnem stanovanju biva 6 % vseh vprašanih, v 4 ali večsobnem 4 %, v garsonjeri pa le 2 %.

Graf 7: Kje trenutno živite?, (v %), n = 204.




Tudi naša raziskava pritrjuje ugotovitvam, da v Sloveniji prevladuje lastniški tip stanovanj. V lastnem oz. solastniškem stanovanju živi kar 83 % anketirancev, sledi pa izbira »stanovanje v lasti sorodnika ali druge osebe«, za katerega ne plačujejo najemnine (10 %). Kar se tiče najemniških stanovanj, so le-ti v veliki manjšini, sledijo si: tržno najemniško stanovanje (3 %), neprofitno najemniško stanovanje (2 %) ter službeno oz. kadrovsko najemniško stanovanje (1 %).

Graf 8: V kakšnem tipu stanovanja (hiše) živite?, (v %), n = 206.



# 5 Rezultati in interpretacija

*Hipoteza 1: Po mnenju anketirancev, na podaljšano sobivanje otrok in staršev bistveno bolj vplivajo objektivni dejavniki (kot so npr. podaljševanje šolanja, situacija mladih na trgu dela, značilnosti stanovanjskega trga) kot pa subjektivni dejavniki (npr. lagodnost življenja doma).*

Na podlagi teoretičnih spoznanj in pregleda že opravljenih raziskav smo oblikovali deset trditev, ki izražajo različne objektivne in subjektivne dejavnike podaljšanega sobivanja mladih v starosti 18–34 let pri svojih starših. Anketiranci so se opredeljevali do postavljenih trditev na petstopenjski Likertovi lestvici, kjer 1 pomeni »sploh se ne strinjam«, 2 »se ne strinjam«, 3 »niti se ne strinjam, niti se strinjam«, 4 »se strinjam« in 5 »zelo se strinjam«, tako da le-te v statističnem smislu predstavljajo proučevane spremenljivke. Kot je razvidno v spodnji tabeli (glej Tabelo 5), kjer so prikazane osnovne opisne mere, imata najvišjo povprečno vrednost trditvi »Ker se podaljšuje trajanje izobraževanja, mladi dlje časa ostanejo pri svojih starših« (4,10) in »Mladi se ne odselijo, ker na voljo nimajo dovolj cenovno ugodnih stanovanjskih možnosti oz. so cene stanovanj previsoke« (3,99), kot najmanj relevantna dejavnika pa anketiranci ocenjujejo zadnja dva, ki izražata odnos otroci-starši – povprečni vrednosti sta le 2,55 in 2,11.

Tabela 2: Opisne mere proučevanih dejavnikov podaljšanega sobivanja.

| | Trditev | Št. enot | Min | Max | Aritm. sredina | Stand. odklon | Koef. variacije |
|---|---|---|---|---|---|---|---|
| Q16a | Mladi se ne odselijo, ker na voljo nimajo dovolj cenovno ugodnih stanovanjskih možnosti oz. so cene stanovanj previsoke. | 195 | 1 | 5 | 3,99 | 0,897 | 0,225 |
| Q16b | Za mlade so stanovanja, kjer je mogoča vzpostavitev lastnega gospodinjstva (npr. najemniška, neprofitna), težko dosegljiva. | 191 | 2 | 5 | 3,88 | 0,859 | 0,221 |
| Q16c | Zaradi omejitev lastnikov tržnih najemnih stanovanj (npr. prisotnost otrok, domačih živali ipd.), so le-ta mladim družinam težje dostopna. | 190 | 1 | 5 | 3,45 | 1,005 | 0,291 |
| Q16d | Ker se podaljšuje trajanje izobraževanja, mladi dlje časa ostanejo pri svojih starših. | 190 | 1 | 5 | 4,10 | 0,963 | 0,235 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Q16e | Mladi živijo doma, ker je trg dela slabo razvit in jim ne ponuja stabilnih oblik zaposlitev. | 190 | 1 | 5 | 3,83 | 0,933 | 0,244 |
| Q16f | Mladi se ne odselijo, ker želijo varčevati in si omogočiti dober začetek z lastno družino. | 189 | 1 | 5 | 3,02 | 0,970 | 0,321 |
| Q16g | Mladi se ne odselijo, ker se vse kasneje odločajo za skupno življenje s partnerjem/ko. | 190 | 1 | 5 | 3,57 | 0,999 | 0,280 |
| Q16h | Mladi živijo v gospodinjstvih svojih staršev zaradi stanovanjskih ugodnosti, za katere jim ni treba prevzeti odgovornosti. | 189 | 1 | 5 | 3,78 | 1,103 | 0,292 |
| Q16i | Mladi ostajajo doma zaradi zaupanja in pristnih prijateljskih vezi s starši. | 190 | 1 | 5 | 2,55 | 0,935 | 0,367 |
| Q16j | Mladi živijo doma, ker finančno skrbijo za starše. | 190 | 1 | 5 | 2,11 | 0,943 | 0,447 |

Porazdelitev odgovorov, izraženih z vrednostmi od 1 do 5, se od trditve do trditve seveda razlikuje, njihovo razpršenost pa lahko izrazimo z različnimi merami variabilnosti. Najbolj poznani sta standardni odklon, ki sodi med absolutne mere in koeficient variacije, ki je najpomembnejša relativna mera variabilnosti, opredeljena kot razmerje med standardnim odklonom in povprečno vrednostjo. Njegova največja prednost je v tem, da omogoča tudi primerjavo variabilnosti med spremenljivkami, izraženimi v različnih merskih enotah oziroma z različnimi povprečnimi vrednostmi (glej Rogelj in Marinšek, 2014, str. 5). Na podlagi izračunanih koeficientov variacije je največja heterogenost izražena pri trditvi »Mladi živijo doma, ker finančno skrbijo za starše« (kv=0,447), najmanj razlik med odgovori (kv=0,221) pa je pri trditvi »Za mlade so stanovanja, kjer je mogoča vzpostavitev lastnega gospodinjstva (npr. najemniška, neprofitna stanovanja), težko dosegljiva«, ki je tudi edina, pri kateri nobeden izmed anketirancev ni odgovoril »sploh se ne strinjam«.

V skladu s teoretičnimi izhodišči prvih pet trditev oziroma spremenljivk v tabeli izraža objektivne dejavnike podaljšanega sobivanja mladih s svojimi starši, drugih pet pa subjektivne, pri čemer je skupinsko povprečje pri objektivnih dejavnikih 3,88, pri subjektivnih pa 3,00. Do ustreznosti izbire trditev za takšno delitev pa se lahko opredelimo tudi s statističnega vidika in

sicer z upoštevanjem tako imenovane zanesljivosti merjenja spremenljivk, kot tudi s pomočjo korelacijske analize. Na podlagi vrednosti korelacijskih koeficientov, ki merijo moč in smer povezanosti, smo ugotovili da je le-ta med dejavniki znotraj skupin precej višja kot pa v primeru, da gre za dejavnike iz različnih skupin. To kaže na notranjo konsistentnost oziroma potrjuje, da sklop prvih petih trditev od Q16a do Q16e izraža eno lastnost, torej objektivne okoliščine, sklop trditev od Q16f do Q16j pa drugo, torej subjektivne okoliščine podaljšanega sobivanja.

Za zanesljivost merjenja spremenljivk se pri anketnih vprašalnikih v družboslovju najpogosteje uporablja Cronbachov koeficient $\alpha$. Z njim izražamo notranjo konsistentnost merske lestvice, ki se uporablja za posamezen sklop vprašanj oziroma trditev, s katerimi izražamo isto lastnost (glej Ferligoj, Leskovšek, Kogovšek, 1995, str. 42-44). Njegove vrednosti so na intervalu med 0 in 1, zanesljivost merjenja pa je tem večja, čim višjo vednost doseže. Spodnja meja, pri kateri še lahko govorimo o zanesljivem merjenju, ni enolično določena, običajno pa se kot referenčna vrednost upošteva 0,7, ki jo je argumentiral Nunnaly (1978). Cronbachov koeficient $\alpha$ je pri sklopu trditev, ki izražajo objektivne okoliščine enak 0,73, kar pomeni ustrezno zanesljivost, v primeru skupine subjektivnih dejavnikov pa je 0,64, kar je nekoliko pod referenčno mejo. Njegova vrednost je sicer odvisna od povezanosti med spremenljivkami znotraj posameznega sklopa in od samega števila spremenljivk. Če je določena spremenljivka zelo šibko povezana s preostalimi znotraj posameznega sklopa, kar pomeni, da z njo ne merimo iste lastnosti kot s preostalimi, jo sicer lahko izločimo. V našem primeru se to ne izkaže kot ustrezen ukrep, saj se Cronbachov koeficient $\alpha$ v primeru izločitve katerekoli izmed petih spremenljivk, ni zvišal

(glej Prilogo C – poglavje 10.3.1). Nekoliko slabšo zanesljivost merjenja subjektivnih okoliščin sobivanja tako lahko pripišemo relativno majhnemu številu upoštevanih trditev in ne njihovi morebitni nekonsistentnosti.

V naslednjem koraku smo preverjali, ali posamezna trditev v očeh anketirancev sploh predstavlja pomemben dejavnik sobivanja ali. Uporabili smo enostranski preizkus domneve o aritmetični sredini, pri čemer smo skušali dokazati, da je povprečna vrednost višja od 3, torej, da se anketiranci strinjajo s pomembnostjo posameznega dejavnika. Na podlagi dobljenih rezultatov ugotavljamo, da je ocenjena povprečna vrednost statistično značilno večja od 3 (pripadajoča enostanska P-vrednost je zanemarljiva) pri vseh petih objektivnih dejavnikih, med subjektivnimi pa sta se kot takšna pokazala dva in sicer »Mladi se ne odselijo, ker se vse kasneje

odločajo za skupno življenje s partnerjem/ko« in »Mladi živijo v gospodinjstvih svojih staršev

zaradi stanovanjskih ugodnosti, za katere jim ni treba prevzeti odgovornosti.« Anketiranci imajo nevtralen odnos le do dejavnika »Mladi se ne odselijo, ker želijo varčevati in si omogočiti dober začetek z lastno družino«, kjer preizkus ni odkril statistično značilnih razlik (enostranska P-vrednost je višja od 0,05), medtem ko se pri obeh subjektivnih dejavnikih, ki izražata odnos starši-otroci izkaže, da sta ocenjeni povprečni vrednosti celo statistično značilno manjše od 3. To pomeni, da se anketiranci v bistvu ne strinjajo, da bi bila omenjena dejavnika sploh relevantna za podaljšanje sobivanja mladih v starosti od 18–34 let pri svojih starših.

Že iz predhodnih ugotovitev lahko razberemo, da se anketirancem v splošnem objektivni dejavniki zdijo pomembnejši od subjektivnih. S statističnega zornega kota bomo omenjeno ugotovitev argumentirali tudi s primerjavo 95 odstotnih intervalov zaupanja za aritmetično sredino med posameznimi dejavniki[3]. Statistično značilna razlika v pomembnosti je med tistima dvema dejavnikoma, pri katerih se intervala zaupanja ne prekrivata, če pa se, pa ne moremo trditi, kateri dejavnik je pomembnejši. V spodnji tabeli so tako za vsako trditev prikazani oceni aritmetične sredine in standardne napake, ki sta potrebni za izračun intervalne ocene in pa njeni spodnja ter zgornja meja.

Tabela 3: 95 odstotni intervali zaupanja za aritmetično sredino.

| | Trditev | Št. enot | Aritm. sredina | Stand. napaka | Spodnja meja | Zgornja meja |
|---|---|---|---|---|---|---|
| Q16a | Mladi se ne odselijo, ker na voljo nimajo dovolj cenovno ugodnih stanovanjskih možnosti oz. so cene stanovanj previsoke. | 195 | 3,99 | ,064 | 3,86 | 4,12 |
| Q16b | Za mlade so stanovanja, kjer je mogoča vzpostavitev lastnega gospodinjstva (npr. najemniška, neprofitna), težko dosegljiva. | 191 | 3,88 | ,062 | 3,76 | 4,00 |
| Q16c | Zaradi omejitev lastnikov tržnih najemnih stanovanj (npr. prisotnost otrok, domačih živali ipd.), so le-ta mladim družinam težje dostopna. | 190 | 3,45 | ,073 | 3,30 | 3,59 |
| Q16d | Ker se podaljšuje trajanje izobraževanja, mladi dlje časa ostanejo pri svojih starših. | 190 | 4,10 | ,070 | 3,96 | 4,24 |

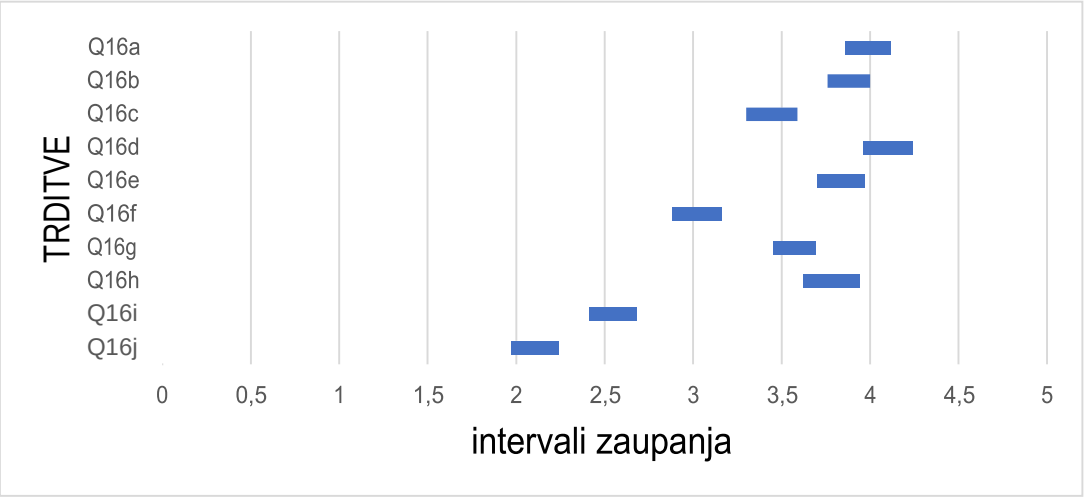
[3] Več o intervalih zaupanja v R. Rogelj in D. Marinšek (2014) ter A. Ferligoj (1995).

| | | | | | | |
|---|---|---|---|---|---|---|
| Q16e | Mladi živijo doma, ker je trg dela slabo razvit in jim ne ponuja stabilnih oblik zaposlitev. | 190 | 3,83 | ,068 | 3,70 | 3,97 |
| Q16f | Mladi se ne odselijo, ker želijo varčevati in si omogočiti dober začetek z lastno družino. | 189 | 3,02 | ,071 | 2,88 | 3,16 |
| Q16g | Mladi se ne odselijo, ker se vse kasneje odločajo za skupno življenje s partnerjem/ko. | 190 | 3,57 | ,069 | 3,45 | 3,69 |
| Q16h | Mladi živijo v gospodinjstvih svojih staršev zaradi stanovanjskih ugodnosti, za katere jim ni treba prevzeti odgovornosti. | 189 | 3,78 | ,080 | 3,62 | 3,94 |
| Q16i | Mladi ostajajo doma zaradi zaupanja in pristnih prijateljskih vezi s starši. | 190 | 2,55 | ,068 | 2,41 | 2,68 |
| Q16j | Mladi živijo doma, ker finančno skrbijo za starše. | 190 | 2,11 | ,068 | 1,97 | 2,24 |

Za ilustracijo vzemimo primerjavo 95 odstotnega intervala zaupanja za aritmetično sredino med prvim objektivnim dejavnikom (Q16a) in drugim subjektivnim dejavnikom (Q16g). Intervalni oceni sta med 3,86 in 4,12 oziroma med 3,45 in 3,69, ker pa je spodnja meja pri objektivnem dejavniku (3,86) višja od zgornje meje intervala pri primerjanem subjektivnem (3,69), pa lahko trdimo, da je za anketirance pomanjkanje dovolj cenovno ugodnih stanovanjskih možnosti pomembnejši dejavnik za podaljšanje sobivanja, kot pa odločanje mladih za vse kasnejše skupno življenje s partnerjem.

Na podlagi primerjav vseh intervalov zaupanja, razvidnih v Grafu 10, smo ugotovili, da med subjektivnimi dejavniki izstopa le tako imenovani »Hotel mama« (Q16h), ki se z vidika strinjanja anketirancev glede relevantnosti za podaljšanje sobivanja uvršča ob bok vsem objektivnim dejavnikom. Do prekrivanja intervalov zaupanja pride le še pri dejavnikih Q16c in Q16g, vse preostale primerjave pa kažejo, da so intervalne ocene pri objektivnih dejavnikih v celoti višje kot pri subjektivnih.

Graf 9: odstotni intervali zaupanja za aritmetično sredino.

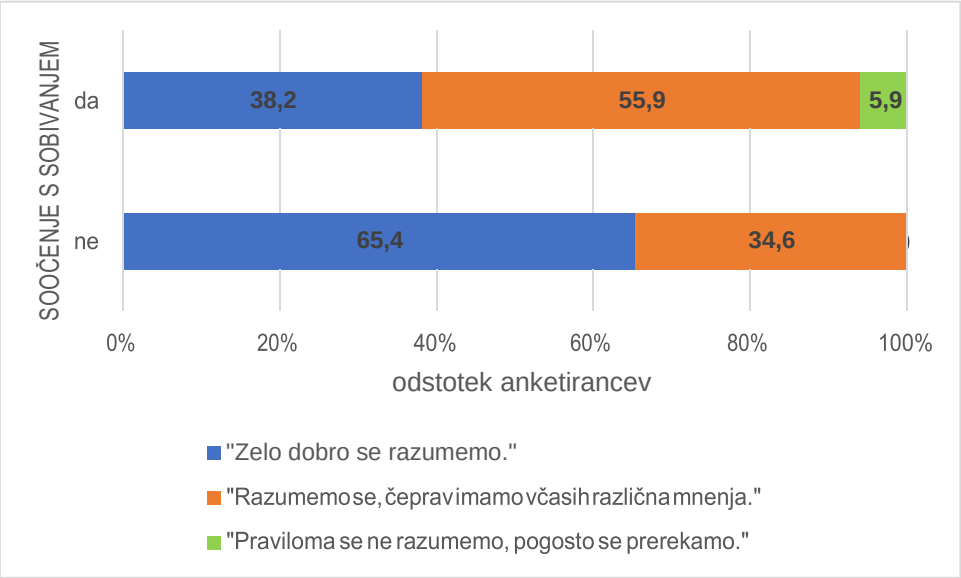



Upoštevajoč navedene rezultate in ugotovitve izvedene analize lahko povzamemo, da so anketirancem v splošnem objektivni dejavniki za podaljšanje sobivanja pomembnejši od subjektivnih (izjema je le Q16h), s čimer je hipoteza 1 v dobršni meri tudi potrjena.

*Hipoteza 2: Anketiranci, ki živijo s svojimi otroki (v starosti 18–34 let) imajo slabše medsebojne odnose (odnos starš-otrok), kot tisti, katerih otroci so se že odselili oz. se osamosvojili.*

Pri preverjanju omenjene hipoteze smo ponovno upoštevali le anketirance, ki imajo otroke v starosti 18–34 let, pri čemer smo jih razdelili na tiste, ki z otroki ne živijo več skupaj (takšnih je 26 izmed 94 anketirancev oz. 27,7 %) in tiste, ki z njimi sobivajo (72,3 %). Anketiranci so odnos otroci-starši ocenjevali na podlagi štirih možnosti: »Zelo dobro se razumemo«, »Razumemo se, čeprav imamo včasih različna mnenja«, »Praviloma se razumemo, pogosto se prerekamo« in »Naš odnos je poln konfliktov«. Slednjo možnost je izbral le eden izmed anketirancev, zato smo ga iz nadaljnje analize izločili. Že iz spodnjega prikaza (glej Graf 14) porazdelitve anketirancev glede na ocene odnosa s svojimi otroki lahko predvidevamo, da med obema skupinama obstajajo razlike. Tako med tistimi, ki niso več vpleteni v sobivanje s svojimi otroki prevladuje mnenje, da se z njimi zelo dobro razumejo (65,4, %), medtem ko tisti, ki z otroki še vedno živijo v skupnem gospodinjstvu večinsko menijo, da se z njimi sicer razumejo, čeprav imajo včasih različna mnenja (55,1 %).

Graf 10: Odnosi na relaciji otroci-starši glede na soočenje s sobivanjem.




Zgornja predvidevanja lahko podkrepimo z uporabo Perasonovega hi kvadrat testa, s katerim preverjamo, ali med vpletenostjo v sobivanje in oceno odnosa starši-otroci obstaja povezanost. Kot lahko vidimo iz izpisa procedure Crosstabs (glej Prilogo C – poglavje 10.3.5), je omenjeni koeficient enak 6,26, pripadajoča P-vrednost pa 0,044. Glede na to, da je nižja od mejne vrednosti 0,05, lahko potrdimo, da med spremenljivkama obstaja odvisnost. Če pogledamo konkretno strukturo ocen odnosa starši-otroci, je razvidno, da imajo tisti anketiranci, ki še vedno živijo s svojimi otroki v starosti 18–34 let, slabše medsebojne odnose kot tisti, ki v sobivanje niso več vpleteni, s čimer smo v celoti potrdili Hipotezo 2.

*Hipoteza 3: Tisti anketiranci, katerih otroci so že osamosvojeni, so bolj zadovoljni s kvaliteto življenja, kot tisti, ki bivajo skupaj.*

Podobno kot pri hipotezah 2,3 in 5 smo tudi pri tej upoštevali le tiste anketirance, ki so imeli otroke v starosti 18–34 let, pri čemer nas je zanimalo njihovo zadovoljstvo s kvaliteto življenja na splošno (Q18a), s trenutnimi bivalnimi pogoji (Q18b) in trenutnim družinskim življenjem (Q18c). Stopnja zadovoljstva je bila ponovno merjena z vrednostmi od 1 do 5, pri čemer 1 pomeni »zelo nezadovoljen«, 5 pa »zelo zadovoljen«.

Glede na to, da so anketiranci (vseh, ki so ocenili zadovoljstvo je bilo 91) razdeljeni v dve skupini in sicer glede na to, ali so vpleteni v sobivanje (71,4 %) ali ne (28,6 %), smo v okviru preizkušanja domnev ponovno izbrali preizkus skupin, pri katerem s pomočjo t testa

ugotavljamo, ali je razlika med aritmetičnima sredinama dveh neodvisnih vzorcev statistično značilna ali ne.

V spodnji taeli so prikazani osnovni rezultati preizkusa skupin za proučevane spremenljivke, pri čemer smo pri vsaki navedli ocenjeni aritmetični sredini za obe skupini anketirancev, razliko med njima in ustrezno vrednost t preizkusa (v odvisnosti od enakosti ali neenakosti varianc) s pripadajočo enostransko P-vrednostjo. Želimo namreč dokazati, da so anketiranci, katerih otroci so že osamosvojeni, v povprečju bolj zadovoljni od tistih, ki so še vedno soočeni s sobivanjem.

Tabela 4: Rezultati preizkusa skupin za proučevane spremenljivke.

| Proučevana spremenljivka | $\bar{x}_{DA}$ | $\bar{x}_{NE}$ | $\bar{x}_{DA} - \bar{x}_{NE}$ | t test | Enostranska P-vrednost |
|---|---|---|---|---|---|
| Q18a: Kvaliteta življenja na splošno. | 3,65 | 4,27 | -0,62 | -4,111 | 0,000 |
| Q18b: Trenutni bivalni pogoji. | 4,17 | 4,46 | -0,29 | -1,938 | 0,028 |
| Q18c: Trenutno družinsko življenje. | 4,06 | 4,38 | 0,32 | -1,834 | 0,038 |

Na podlagi izvedenih preizkusov ugotavljamo, da je razlika med ocenjenima aritmetičnima sredinama pri vseh treh spremenljivkah zadovoljstva statistično značilna. Pri spremenljivki Q18a je enostranska P-vrednost zanemarljivo majhna, pri preostalih dveh pa 0,028 oziroma 0,038, kar je še vedno manj od mejne vrednosti 0,05. S tem smo dokazali, da je stopnja zadovoljstva z omenjenimi značilnostmi pri anketirancih, ki ne živijo več s svojimi otroki, starimi 18–34 let, v skupnem gospodinjstvu, višja, kot pa pri anketirancih, ki so še vedno vpleteni v sobivanje, tako da je Hipoteza 3 v celoti potrjena.

## 6. Sklep

Ko je govora o stanovanjski problematiki mladih v Sloveniji se pogosto izpostavlja vprašanje poznega odseljevanja mladih od njihovih staršev, saj je osamosvojitev oz. prehod k samostojnemu gospodinjstvu eden ključnih znakov prehoda v odraslost. Prehod v lastno gospodinjstvo (in s tem povezan tudi npr. vse poznejši prevzem odgovornosti za lastno družino,

odlašanje z odločitvijo za rojstvo otrok ipd. – med mladimi je namreč ključni pogoj za ustvarjanje družine vzpostavitev lastnega gospodinjstva), je tako vse poznejši. Govorimo lahko o trendu odlaganja odselitve, ki pa je, kot smo ugotovili tekom pregleda nekatere obstoječe literature in izsledkov raziskav, odvisen od mnogih dejavnikov. Na podaljševanje sobivanja otrok oz. t. i. mladih odraslih in njihovih staršev tako med drugim vplivajo npr. materialni dejavniki, med katerimi še posebej velja izpostaviti razmere na trgu nepremičnin (cene stanovanj, pomanjkanje najemniških stanovanj) in dostopnost ustrezne zaposlitve na trgu dela. Dejstvo je tudi, da se čas izobraževanja podaljšuje, vse večji pa je tudi sam delež vključenosti v izobraževanje. Na drugi strani pa se kaže, da mladi doma ostajajo tudi zaradi udobja, ki jim ga prinašajo usluge t. i. »mama hotela«. Avtoriteta staršev je dandanes oslabljena, zaradi demokratizacije je manj konfliktov, mladi pa v družinah uživajo visoko stopnjo avtonomije in svobode.

Socialno-psihološki pristopi razlago pojava podaljšanega sobivanja iščejo v procesih odraščanja in oblikovanja identitete, sociološke poudarjajo vlogo strukturnih dejavnikov in družbenih okoliščin, nekateri analitiki pa se opirajo tudi na koncepte režimov držav blaginje. Ugotovili smo, da je delovanje države blaginje na področju dostopnosti stanovanjskih virov v Sloveniji šibko, pregled ukrepov stanovanjske politike pa je pokazal, da je le-ta precej neučinkovita.

Z izvedbo ankete in obdelavo tako zbranih podatkov z različnimi statističnimi metodami, pa smo ugotavljali mnenja, stališča in odnos srednje aktivne generacije (starostna kategorija 40–61 let) do stanovanjskega problema mladih (med drugim njihov pogled na stanovanjsko problematiko mladih, pomembnost različnih dejavnikov, ki vplivajo na podaljšano sobivanje, soočenje s trendom podaljšanega sobivanja oz. vpletenost v sobivanje ipd.). Na podlagi pregleda teoretičnih spoznanj in do sedaj izvedenih raziskav smo oblikovali tri raziskovalne hipoteze, ki smo jih poskušali potrditi z uporabo ustreznih statističnih metod. S prvo hipotezo smo preverjali, če (po mnenju anketirancev) na podaljšano sobivanje otrok in staršev bolj vplivajo objektivni dejavniki (kot so npr. podaljševanje šolanja, situacija mladih na trgu dela, značilnosti stanovanjskega trga) kot pa subjektivni dejavniki (npr. lagodnost življenja doma). Prvo hipotezo smo tako v dobršni meri uspeli potrditi, saj se je pri vseh statističnih testih pokazalo, da so objektivni dejavniki anketirancem pomembnejši od subjektivnih. Glede relevantnosti za podaljšanje sobivanja ob bok objektivnim dejavnikom po pomembnosti lahko dodamo le en subjektivni dejavnik – to je t. i. »hotel mama«. Potrdili smo hipotezi 2 in 3, ki sta

se navezovali na oceno odnosov na relaciji otroci-starši ter na kvaliteto življenja. Ugotovili smo namreč, da imajo tisti anketiranci, ki še vedno živijo s svojimi otroki v starosti 18–34 let, slabše medsebojne odnose kot tisti, ki v sobivanje niso več vpleteni ter da je stopnja zadovoljstva pri anketirancih, ki ne živijo več s svojimi otroki (18–34 let) v skupnem gospodinjstvu, višja, kot pa pri anketirancih, ki so še vedno vpleteni v sobivanje. Glede na to, da so že bile izvedene raziskave v smeri kaj o omenjeni problematiki menijo mladi (razlogi za podaljšano sobivanje, odnosi, mnenja ipd.), smo v magistrski nalogi z analizo lastnega anketnega vprašalnika raziskali mnenja srednje aktivne generacije (40–61 let) in ugotovili, kako na ta aktualen problem gleda druga generacija. Analiza tako predstavlja prispevek k obravnavi stanovanjske problematike mladih in fenomena podaljšanega sobivanja mladih odraslih in njihovih staršev, hkrati pa dobimo vpogled tudi v pregled stanovanjske politike ter ključnih pravnih podlag.

Dobljeni rezultati se bodo lahko primerjali z rezultati drugih raziskav (primerjava generacij ipd.), pregled stanja stanovanjske politike in izpostavljene težave pa so lahko uporabne tudi pri pripravi strategij, priporočil, možnih rešitev za izboljšanje stanja ipd. Odpre se nam tudi kar nekaj izzivov za nadaljnje raziskovanje: z izvedbo konkretne ankete, ki bi poleg srednje generacije vsebovala tudi odgovore mlajše generacije (npr. 18-34 let), bi lahko z uporabo ustreznih statističnih testov, korelacij ipd. npr. izvedli relevantno statistično analizo oz. primerjavo mnenj več generacij (torej ne zgolj opisno); z uporabo multivariatnih metod, predvsem faktorske analize, pa je možna poglobljena analiza dejavnikov, ki opredeljujejo subjektivne in objektivne okoliščine za sobivanje; raziskovalni izziv pa so seveda tudi mednarodne primerjave ipd.

Dejstvo je, da ima podaljšano sobivanje za posameznika (in njegovo družino) lahko kar nekaj negativnih posledic (pasivnost, konflikti med generacijami, neavtonomnost itd.), zato je pomembno, da se tako širša družba kot posamezne države tega zavedajo in poskrbijo za pripravo ustrezne zakonodaje ter primernih ukrepov in strategij (na področju stanovanjske politike, oskrbe s stanovanji, šolstva, zaposlovanja ipd.), s katerimi bi omenjeno situacijo lahko izboljšali.

**ZAHVALA**

Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: *Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva*; št. projekta J5-3112.

**Lliteratura in viri**


Aassve, A., Cottini, E., Vitali, A. (2013). *Youth Vulnerability in Europe during the Great Recession*. Dondena Working Papers 57. URL: https://eprints.soton.ac.uk/358782/1/__soton.ac.uk_ude_PersonalFiles_Users_av2f12_mydocuments_CV_Publications_Dondena_WP057.pdf, 20. 05. 2017.

Bethlehem, J., Biffignandi, S. (2012). *Handbook of Web Surveys*. Hoboken (New Jersey): John Wiley & Sons.

Billari, F., Liefbroer, A. C. (2007). Should I stay or should I go? The impact of age norms on leaving home. *Demography*, Vol. 44, Number 1, p. 181–198.

Buck, N., Scott, J. (1993). She's leaving home: but why? An analysis of young people leaving the parental home. *Journal of marriage and the family*, Vol. 55, Number 4, p. 863–874.

Cirman, A. (2002). Primerjalne prednosti in slabosti lastniškega in najemnega stanovanjskega statusa. V: *Stanovanjske študije* / ur. Srna Mandič in Maša Filipović. Ljubljana: Fakulteta za družbene vede. Str. 163–182.

Côté, J. E. (2000). *Arrested adulthood: the changing nature of maturity and identity*. New York; London: New York University Press.

Ferligoj, A. (1995). *Osnove statistike na prosojnicah*. Ljubljana: samozaložba Zenel Batagelj.

Ferligoj, A., Leskošek, K. in Kogovšek, T. (1995). *Zanesljivost in veljavnost merjenja*. Ljubljana: Fakulteta za družbene vede.

Filipovič Hrast, M. in Hlebec, V. (2015). *Staranje prebivalstva: oskrba, blaginja in solidarnost*. Ljubljana: Fakulteta za družbene vede.

Florjančič, A. (2007). *Problematika reševanja stanovanjskega problema mladih v Mestni občini Novo mesto – diplomsko delo*. Ljubljana: Ekonomska fakulteta.

Grum, B. in Temeljotov Salaj, A. (2011). *Interdisciplinarni vidiki nepremičnin: znanstvena monografija*. Nova Gorica: Evropska pravna fakulteta.

Grum, B. in Temeljotov Salaj A. (2016). Medgeneracijsko sobivanje mladih in starih: medkulturna primerjava. *Urbani izziv*, let. 27, št. 1, str. 76–88.

Hlebec, V. et al. (2012). *Medgeneracijska solidarnost v Sloveniji*. Ljubljana: Fakulteta za družbene vede.

Holdsworth, C. (2000). Leaving Home in Britain and Spain. *European Sociological Review*, Vol. 16, Number 2, p. 201–222.

Holdsworth, C., Morgan, D. (2005). *Transitions in Context: Leaving Home, Independence and Adulthood*. New York: Open University Press.

Jones, C. L., Tepperman, L., Wilson, S. J. (1995). *The futures of the family*. Englewood Cliffs: Prentice Hall.

Kolarič, Z. (2011). Medgeneracijska solidarnost v primežu reform evropskih držav blaginje. V: *Blaginja pod pritiski demografskih sprememb* / ur. Srna Mandič in Maša Filipovič Hrast. Ljubljana: Fakulteta za družbene vede. Str. 205–224.

Kropivnik, S., Kogovšek, T. in Gnidovec, M. (2006). *Analize podatkov z SPSS-om 12.0: predavanja in vaje*. Ljubljana: Fakulteta za družbene vede.

Kuhar, M. (2013). Analiza dejavnikov podaljšanega sobivanja staršev in otrok v Sloveniji. *Teorija in praksa*, let. 50, št. 5–6, str. 791–809.

Lavrič, M. in Flere, S. (2011). Demografske spremembe in medgeneracijsko sodelovanje. V: *Mladina 2010: družbeni profil mladih v Sloveniji* / ur. Miran Lavrič. Ljubljana: Ministrstvo za šolstvo in šport, Urad RS za mladino; Maribor: Aristej. Str: 63–92.

Lavrič, M. in Klanjšek, R. (2011). Stanovanjske in bivanjske razmere mladih. V: *Mladina 2010: družbeni profil mladih v Sloveniji* / ur. Miran Lavrič. Ljubljana: Ministrstvo za šolstvo in šport, Urad RS za mladino; Maribor: Aristej. Str. 347–373.

Lavrič, M. et al. (2011). Raziskovalne metode. V: *Mladina 2010: družbeni profil mladih v Sloveniji* / ur. Miran Lavrič. Ljubljana: Ministrstvo za šolstvo in šport, Urad RS za mladino; Maribor: Aristej. Str: 43–61.

Mandič, S. (2009a). Zaposlitev, stanovanje in razvojne dileme sodobne družbe. *Teorija in praksa*, let. 46, št. 4, str. 408–423.

Mandič, S. (1995). Stanovanjski parametri kakovosti življenja in spremembe v zadnjem desetletju. V: *Kakovost življenja v Sloveniji* / ur. Ivan Svetlik. Ljubljana: Fakulteta za družbene vede. Str. 213–232.

Mandič, S. (1999). Stanovanjska tveganja, ranljive skupine in novi pogledi (Uvod). V: *Pravica do stanovanja: brezdomstvo in druga stanovanjska tveganja ranljivih skupin* / ur. Srna Mandič. Ljubljana: Visoka šola za socialno delo. Str. 11–42.

Mandič, S. (2000). Selitev in stanovanjske izboljšave na mestu: zgodovinske določnice in pogostost teh strategij v Sloveniji. V: *Kakovost življenja: stanja in spremembe* / ur. Srna Mandič. Ljubljana: Fakulteta za družbene vede. Str. 145–160.

Mandič, S. in Gnidovec, M. (2000). Stanovanjska kariera in prehod iz stanovanja staršev v prvo samostojno stanovanje. V: *Kakovost življenja: stanja in spremembe* / ur. Srna Mandič. Ljubljana: Fakulteta za družbene vede. Str. 43–74.

Mandič, S. (2005). *STAN05 – Stanovanjska anketa 2005* (vprašalnik). Arhiv družboslovnih podatkov. URL: http://www.adp.fdv.uni-lj.si/podatki/stan05/stan05-vp.pdf, 18. 06. 2017.

Mandič, S. (2006). Stanovanje in kakovost življenja. V: *Stanovanje v Sloveniji 2005* / ur. Srna Mandič in Andreja Cirman. Ljubljana: Fakulteta za družbene vede. Str. 15–54.

Mandič, S. (2009b). Stanovanjske razmere mladih. V: *Med otroštvom in odraslostjo: Analiza položaja mladih v Sloveniji 2009* / ur. Tatjana Rakar in Urban Boljka. Ljubljana: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino: Inštitut Republike Slovenije za socialno varstvo. Str. 77–93.

Mandič, S. (2007). Odhod v prvo samostojno stanovanje: primerjalna analiza med državami EU. *Družboslovne razprave*, let. 23, št. 54, str. 7–24.

Miheljak, V. (2000). *MLA00 – Mladina 2000* (vprašalnik). Arhiv družboslovnih podatkov. URL: http://www.adp.fdv.uni-lj.si/podatki/mla/mla00-vp.pdf, 18. 06. 2017.

*Mladina 2013: Življenje v času deziluzij, tveganja in prekarnosti*, strnjeno poročilo. Center za raziskovanje postjugoslovanskih družb (CEPYUS), Maribor; Friedrich Ebert Stiftung (FES), Zagreb. URL: http://mfdps.si/Files/Knjiznica/MLADINA-2013_Strnjeno-porocilo.pdf, 12. 06. 2017.

Morgan, D. H. J. (1996). *Family Connections: an introduction to family studies*. Cambridge, MA: Polity press.

Matsudaira, J. (2016). Economic conditions and the living arrangements of young adults**:** 1960 to 2011. *Journal of Population Economics*, Vol. 29, Number 1, p. 167–195.

Nahtigal, D. in Grum, B. (2015). *Vrednotenje nepremičnin: raziskovalna izhodišča pri uporabi načina primerljivih prodaj: znanstvena monografija*. Nova Gorica: Evropska pravna fakulteta.

Nunnaly, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Ramovš, K. (2013). Medgeneracijsko sožitje in solidarnost. *Kakovostna starost: časopis za socialno gerontologijo in gerontagogiko*, let. 16, št. 4, str. 3–33.

Ramovš, J. *Gerontologija: Slovar: življenjska obdobja*. Inštitut Antona Trstenjaka. URL: http://www.inst-antonatrstenjaka.si/gerontologija/slovar/1432.html, 06. 06. 2017.

Rener, T. (1996). Mladina in družina. V: *Predah za študentsko mladino.* Ljubljana: Zavod Republike Slovenije za šolstvo: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino. Str. 117–152.

Rener, T. (2006a). Težave s pojmom družine. V: *Družine in družinsko življenje v Sloveniji*. Koper: Univerza na Primorskem, Znanstveno-raziskovalno središče, Založba Annales: Zgodovinsko društvo za južno Primorsko. Str. 13–26.

Rogelj, R. in Marinšek, D. (2014). *Statistična analiza: Zbirka rešenih primerov s komentarji*. Ljubljana: Ekonomska fakulteta.

Rovan, J. in Turk, T. (2012). *Analiza podatkov s SPSS za Windows*. Ljubljana: Ekonomska fakulteta.

Sendi, R. (2007). Predlog modela stanovanjskega sistema. V: *Stanovanjska reforma: pričakovanja, potrebe in realizacija* / ur. Richard Sendi. Ljubljana: Urbanistični inštitut Republike Slovenije. Str. 169–202.

*Stanovanjska problematika mladih: programski dokument Mladinskega sveta Slovenije*. (2010). Ljubljana: Mladinski svet Slovenije.

*Statistični letopis 2013*, tiskana izdaja. (2013). Ljubljana: Statistični urad Republike Slovenije.

Šircelj, M. in Žnidaršič, T. (2005). Otroci in mladina z demografskega vidika. V: *Otroci in mladina v prehodni družbi: analiza položaja v Sloveniji* / ur. Andreja Črnak-Meglič. Ljubljana: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino; Maribor: Aristej. Str. 39–55.

Šuster Erjavec, H. in Južnik Rotar, L. (2013). *Analiza podatkov s SPSS*. Celje: Fakulteta za komercialne in poslovne vede.

Švab, A. (2001). *Družina: od modernosti k postmodernosti*. Ljubljana: Znanstveno in publicistično središče.

Turk, B. J. (2014). *Stanovanjsko pravo s Stanovanjskim zakonom (SZ)*. Ljubljana: Inštitut za civilno in gospodarsko pravo.

Ule, M. in Miheljak, V. (1995). *Prihodnost mladine*. Ljubljana: Ministrstvo Ljubljana: DZS: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino.

Ule, M. (1995). Odraščanje v Sloveniji. V: *Prihodnost mladine* / ur. Aleš Pogačnik. Ljubljana: DZS: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino. Str. 63–133.

Ule, M. et al. (1996). *Predah za študentsko mladino*. Ljubljana: Zavod Republike Slovenije za šolstvo: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino.

Ule, M. et al. (2000). *Socialna ranljivost mladih*. Ljubljana: Ministrstvo za šolstvo in šport, Urad Republike Slovenije za mladino; Šentilj: Aristej.

Ule, M. (2002). Mladina: fenomen dvajsetega stoletja. V: *Mladina 2000: slovenska mladina na prehodu v tretje tisočletje* / ur. Vlado Miheljak. Ljubljana: Ministrstvo za šolstvo, znanost in šport, Urad Republike Slovenije za mladino; Maribor: Aristej. Str. 9–37.

Ule, M. in Kuhar, M. (2002). Sodobna mladina: izzivi sprememb. V: *Mladina 2000: slovenska mladina na prehodu v tretje tisočletje* / ur. Vlado Miheljak. Ljubljana: Ministrstvo za šolstvo, znanost in šport, Urad Republike Slovenije za mladino; Maribor: Aristej. Str. 39–77.

Ule, M. et al. (2002). *Mladina 2000: slovenska mladina na prehodu v tretje tisočletje.* Ljubljana: Ministrstvo za šolstvo, znanost in šport, Urad Republike Slovenije za mladino; Maribor: Aristej.

Ule, M. in Kuhar, M. (2003). *Mladi, družina, starševstvo: spremembe življenjskih potekov v pozni moderni*. Ljubljana: Fakulteta za družbene vede.

Ule, M. (2008). *Za vedno mladi? Socialna psihologija odraščanja*. Ljubljana: Fakulteta za družbene vede.

## Priloga:

**HIPOTEZA 1**

**a) Korelacijska matrika med proučevanimi spremenljivkami**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 188 | 90,4 |
| | Excluded[a] | 20 | 9,6 |
| | Total | 208 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Inter-Item Correlation Matrix**

| | Q16f | Q16g | Q16h | Q16i | Q16j | Q16a | Q16b | Q16c | Q16d | Q16e |
|---|---|---|---|---|---|---|---|---|---|---|
| **Q16f** | 1,000 | ,488 | ,199 | ,369 | ,295 | ,136 | ,029 | ,176 | ,226 | ,181 |
| **Q16g** | ,488 | 1,000 | ,497 | ,232 | ,147 | -,096 | -,134 | ,043 | ,330 | ,158 |
| **Q16h** | ,199 | ,497 | 1,000 | ,196 | -,096 | -,179 | -,252 | -,105 | ,175 | -,103 |
| **Q16i** | ,369 | ,232 | ,196 | 1,000 | ,299 | ,000 | -,036 | ,149 | ,154 | -,006 |
| **Q16j** | ,295 | ,147 | -,096 | ,299 | 1,000 | ,102 | ,094 | ,137 | ,089 | ,164 |
| **Q16a** | ,136 | -,096 | -,179 | ,000 | ,102 | 1,000 | ,680 | ,447 | ,181 | ,385 |
| **Q16b** | ,029 | -,134 | -,252 | -,036 | ,094 | ,680 | 1,000 | ,504 | ,116 | ,404 |
| **Q16c** | ,176 | ,043 | -,105 | ,149 | ,137 | ,447 | ,504 | 1,000 | ,307 | ,328 |
| **Q16d** | ,226 | ,330 | ,175 | ,154 | ,089 | ,181 | ,116 | ,307 | 1,000 | ,248 |
| **Q16e** | ,181 | ,158 | -,103 | -,006 | ,164 | ,385 | ,404 | ,328 | ,248 | 1,000 |

***b)* Zanesljivost merjenja in izračun Cronbachovega koeficienta** $\alpha$

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 190 | 91,3 |
| | Excluded[a] | 18 | 8,7 |
| | Total | 208 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,732 | ,736 | 5 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| **Q16a** | 3,99 | ,888 | 190 |
| **Q16b** | 3,88 | ,861 | 190 |
| **Q16c** | 3,45 | 1,005 | 190 |
| **Q16d** | 4,10 | ,963 | 190 |
| **Q16e** | 3,83 | ,933 | 190 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | **3,851** | 3,447 | 4,100 | ,653 | 1,189 | ,062 | 5 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| **Q16a** | 15,26 | 6,912 | ,592 | ,486 | ,649 |
| **Q16b** | 15,37 | 6,976 | ,604 | ,528 | ,646 |
| **Q16c** | 15,81 | 6,581 | ,557 | ,332 | ,659 |
| **Q16d** | 15,15 | 8,014 | ,280 | ,129 | ,766 |
| **Q16e** | 15,42 | 7,250 | ,466 | ,224 | ,696 |

**Reliability**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 188 | 90,4 |
| | Excluded[a] | 20 | 9,6 |
| | Total | 208 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's alpha Based on standardized Items | N of Items |
|---|---|---|
| ,637 | ,640 | 5 |
| | | |
| | | |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| **Q16f** | 3,02 | ,970 | 188 |
| **Q16g** | 3,57 | 1,003 | 188 |
| **Q16h** | 3,78 | 1,106 | 188 |
| **Q16i** | 2,55 | ,938 | 188 |
| **Q16j** | 2,10 | ,945 | 188 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | **3,004** | 2,101 | 3,777 | 1,676 | 1,797 | ,486 | 5 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| **Q16f** | 12,00 | 6,556 | ,521 | ,334 | ,520 |
| **Q16g** | 11,45 | 6,313 | ,549 | ,410 | ,502 |
| **Q16h** | 11,24 | 7,127 | ,294 | ,297 | ,638 |
| **Q16i** | 12,47 | 7,160 | ,407 | ,202 | ,577 |
| **Q16j** | 12,92 | 8,042 | ,214 | ,172 | ,662 |

**c) Preverjanje domneve o vrednosti aritmetične sredine**

**T-Test**

**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| **Q16a** | 195 | 3,99 | ,897 | ,064 |
| **Q16b** | 191 | 3,88 | ,859 | ,062 |
| **Q16c** | 190 | 3,45 | 1,005 | ,073 |
| **Q16d** | 190 | 4,10 | ,963 | ,070 |
| **Q16e** | 190 | 3,83 | ,933 | ,068 |
| **Q16f** | 189 | 3,02 | ,970 | ,071 |
| **Q16g** | 190 | 3,57 | ,999 | ,069 |
| **Q16h** | 189 | 3,78 | 1,103 | ,080 |
| **Q16i** | 190 | 2,55 | ,935 | ,068 |
| **Q16j** | 190 | 2,11 | ,943 | ,068 |

**One-Sample Test**

Test Value = 3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference Lower | Upper |
|---|---|---|---|---|---|---|
| **Q16a** | 15,414 | 194 | ,000 | ,990 | ,86 | 1,12 |
| **Q16b** | 14,150 | 190 | ,000 | ,880 | ,76 | 1,00 |
| **Q16c** | 6,135 | 189 | ,000 | ,447 | ,30 | ,59 |
| **Q16d** | 15,753 | 189 | ,000 | 1,100 | ,96 | 1,24 |
| **Q16e** | 12,282 | 189 | ,000 | ,832 | ,70 | ,97 |
| **Q16f** | ,225 | 188 | ,822 | ,016 | -,12 | ,16 |
| **Q16g** | 7,919 | 189 | ,000 | ,574 | ,43 | ,72 |
| **Q16h** | 9,695 | 188 | ,000 | ,778 | ,62 | ,94 |
| **Q16i** | -6,676 | 189 | ,000 | -,453 | -,59 | -,32 |
| **Q16j** | -13,085 | 189 | ,000 | -,895 | -1,03 | -,76 |

Opomba: V zgornji tabeli so tudi intervali zaupanja, ki jih SPSS vedno izračunava za razliko med aritmetično sredino in vrednostjo, ki jo testiramo. Torej ne gre za intervale, ki smo jih uporabili za primerjavo pomembnosti posameznih dejavnikov.

**HIPOTEZA 2**

**Kontingenčna tabela in Pearsonov hi kvadrat test**

**Crosstabs**

**Q11b * Kako bi konkretno ocenili vaš odnos s svojimi otroki? Crosstabulation**

| | | | Kako bi konkretno ocenili vaš odnos s svojimi otroki? (Q12) | | | |
|---|---|---|---|---|---|---|
| | | | Zelo dobro se razumemo | Razumemo se, čeprav imamo včasih različna mnenja | Praviloma se ne razumemo, pogosto se prerekamo | Total |
| Sobivanje (Q11b) | Ne | Count | 17 | 9 | 0 | 26 |
| | | % within Q11b | **65,4%** | **34,6%** | **0,0%** | 100,0% |
| | | % of Total | 18,1% | 9,6% | 0,0% | 27,7% |
| | Da | Count | 26 | 38 | 4 | 68 |
| | | % within Q11b | **38,2%** | **55,9%** | **5,9%** | 100,0% |
| | | % of Total | 27,7% | 40,4% | 4,3% | 72,3% |
| Total | | Count | 43 | 47 | 4 | 94 |
| | | % within Q11b | 45,7% | 50,0% | 4,3% | 100,0% |
| | | % of Total | 45,7% | 50,0% | 4,3% | 100,0% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| **Pearson Chi-Square** | **6,261[a]** | 2 | **,044** |
| Likelihood Ratio | 7,245 | 2 | ,027 |
| Linear-by-Linear Association | 6,193 | 1 | ,013 |
| N of Valid Cases | 94 | | |

a. 2 cells (33,3%) have expected count less than 5. The minimum expected count is 1,11.

**T-Test**

**Group Statistics**

| | Sobivanje | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Q18a | Da | 65 | 3,65 | ,672 | ,083 |
| | Ne | 26 | 4,27 | ,604 | ,118 |
| Q18b | Da | 65 | 4,17 | ,651 | ,081 |
| | Ne | 26 | 4,46 | ,647 | ,127 |
| Q18c | Da | 65 | 4,06 | ,634 | ,079 |
| | Ne | 26 | 4,38 | ,804 | ,158 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | |
|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| Q18a | Equal variances assumed | ,451 | ,504 | **-4,111** | 89 | **,000** | -,623 | ,152 |
| | Equal variances not assumed | | | -4,304 | 50,981 | ,000 | -,623 | ,145 |
| Q18b | Equal variances assumed | 1,084 | ,301 | **-1,938** | 89 | **,056** | -,292 | ,151 |
| | Equal variances not assumed | | | -1,944 | 46,396 | ,058 | -,292 | ,150 |
| Q18c | Equal variances assumed | 5,558 | ,021 | -2,029 | 89 | ,045 | -,323 | ,159 |
| | Equal variances not assumed | | | **-1,834** | 38,084 | **,075** | -,323 | ,176 |

## PRILOGA – anketni vprašalnik

**Q1 - Prosim, da najprej odgovorite na nekaj demografskih vprašanj.**

**Q2 - Spol:**

- Moški.
- Ženski.

**Q3 - Starost:**

- 40-50 let.
- 51-61 let.

**Q4 - Najvišja dosežena stopnja izobrazbe:**

- Osnovnošolska.
- Srednješolska.
- Višja in visokošolska.
- Univerzitetna ali več.

**Q5 - Koliko znaša vaš mesečni neto dohodek?**

- Do 500 €.
- Nad 500 € do 1000 €.
- Nad 1000 € do 1500 €.
- Nad 1500 € do 2000 €.
- Nad 2000 €.
- Ne želim odgovoriti.

**Q6 - Kakšen je vaš trenutni zaposlitveni status?**

- Redno zaposlen/a za določen čas (polno zaposleni).
- Redno zaposlen/a za nedoločen čas (polno zaposleni).
- Zaposlen/a za krajši delovni čas.
- Samozaposlen/a (tudi kmetovalci).
- Brezposeln/a.
- Upokojenec/ka.

**Q7 - Kje trenutno živite?**

- Stanovanjska hiša.
- Garsonjera.
- 1-sobno ali 1,5 sobno stanovanje.
- 2-sobno ali 2,5 sobno stanovanje.
- 3-sobno ali 3,5 sobno stanovanje.
- 4 ali večsobno stanovanje.

**Q8 - V kakšnem tipu stanovanja oz. hiše živite?**

- Lastno ali solastniško stanovanje.
- Tržno najemniško stanovanje.
- Neprofitno najemniško stanovanje.
- Službeno/kadrovsko najemniško stanovanje.

◌ Stanovanje v lasti sorodnika ali druge osebe (ne plačujem najemnine).

**Q9 - Koliko otrok imate?**

◌ 0.
◌ 1.
◌ 2.
◌ 3.
◌ 4.
◌ 5 in več.

**Q10 - Koliko otrok v starosti 18-34 let imate?**

◌ 0.
◌ 1.
◌ 2.
◌ 3.
◌ 4.
◌ 5 in več.

**Q11 - Koliko otrok, v starosti 18-34 let, živi z vami v skupnem gospodinjstvu?**

◌ 0.
◌ 1.
◌ 2.
◌ 3.
◌ 4.
◌ 5 in več.

**Q12 - Kako bi konkretno ocenili vaš odnos s svojimi otroki?**

◌ Zelo dobro se razumemo.
◌ Razumemo se, čeprav imamo včasih različna mnenja.
◌ Praviloma se ne razumemo, pogosto se prerekamo.
◌ Naš odnos je poln konfliktov.
◌ Nimam otrok.

**Q13 - Naslednji sklop vprašanj se navezuje na vaša stališča in mnenja do stanovanjske problematike mladih in podaljšanega sobivanja mladih odraslih (v starosti 18-34 let) in njihovih staršev.**

**Q14 - Kaj menite, pri katerih letih bi se mladi morali osamosvojiti in vzpostaviti samostojno gospodinjstvo?**

◌ Med 18-im in 24-im letom.
◌ Med 25-im in 29-im letom.
◌ Med 30-im in 34-im letom.
◌ Po 34-em letu.

**Q15 - Prosim, označite na lestvici od 1 do 5 vaše strinjanje z naslednjimi trditvami (pri čemer 1 pomeni sploh se ne strinjam, 2 se ne strinjam, 3 niti se ne strinjam, niti se strinjam, 4 se strinjam, 5 zelo se strinjam).**

| | 1-sploh se ne strinjam | 2- se ne strinjam | 3- niti se ne strinjam, niti se strinjam | 4- se strinjam | 5- zelo se strinjam |
|---|---|---|---|---|---|
| Mladi vse kasneje zapuščajo izvorno družino oz. dom staršev. | ○ | ○ | ○ | ○ | ○ |
| Mladi imajo problem pri osamosvajanju in reševanju stanovanjskega problema. | ○ | ○ | ○ | ○ | ○ |
| Podaljševanje sobivanja mladih in njihovih staršev je zaskrbljujoče. | ○ | ○ | ○ | ○ | ○ |

**Q16 - Naslednje trditve se nanašajo na dejavnike podaljšanega sobivanja. Prosim, označite na lestvici od 1 do 5 vašo stopnjo strinjanja (pri čemer 1 pomeni sploh se ne strinjam, 2 se ne strinjam, 3 niti se ne strinjam, niti se strinjam, 4 se strinjam, 5 zelo se strinjam).**

| | 1- sploh se ne strinjam | 2- se ne strinjam | 3- niti se ne strinjam, niti se strinjam | 4- se strinjam | 5- zelo se strinjam |
|---|---|---|---|---|---|
| Mladi se ne odselijo, ker na voljo nimajo dovolj cenovno ugodnih stanovanjskih možnosti oz. so cene stanovanj previsoke. | ○ | ○ | ○ | ○ | ○ |
| Za mlade so stanovanja, kjer je mogoča vzpostavitev lastnega gospodinjstva (npr. najemniška, neprofitna stanovanja), težko dosegljiva. | ○ | ○ | ○ | ○ | ○ |
| Zaradi omejitev lastnikov tržnih najemnih stanovanj (npr. prisotnost otrok, domačih živali ipd.), so le-ta mladim družinam težje dostopna. | ○ | ○ | ○ | ○ | ○ |
| Ker se podaljšuje trajanje izobraževanja, mladi dlje časa ostanejo pri svojih starših. | ○ | ○ | ○ | ○ | ○ |
| Mladi živijo doma, ker je trg dela slabo razvit in jim ne ponuja stabilnih oblik zaposlitev. | ○ | ○ | ○ | ○ | ○ |
| Mladi se ne odselijo, ker želijo varčevati in si omogočiti dober začetek z lastno družino. | ○ | ○ | ○ | ○ | ○ |
| Mladi se ne odselijo, ker se vse kasneje odločajo za skupno življenje s partnerjem/ko. | ○ | ○ | ○ | ○ | ○ |
| Mladi živijo v gospodinjstvih svojih staršev zaradi stanovanjskih ugodnosti, za katere jim ni treba prevzeti odgovornosti. | ○ | ○ | ○ | ○ | ○ |
| Mladi ostajajo doma zaradi zaupanja in pristnih prijateljskih vezi s starši. | ○ | ○ | ○ | ○ | ○ |
| Mladi živijo doma, ker finančno skrbijo za starše. | ○ | ○ | ○ | ○ | ○ |

**Q17 - Prosim, označite na lestvici od 1 do 5 vaše strinjanje z naslednjimi trditvami (pri čemer 1 pomeni sploh se ne strinjam, 2 se ne strinjam, 3 niti se ne strinjam, niti se strinjam, 4 se strinjam, 5 zelo se strinjam).**

| | 1-sploh se ne strinjam | 2- se ne strinjam | 3- niti se ne strinjam, niti se strinjam | 4- se strinjam | 5- zelo se strinjam |
|---|---|---|---|---|---|
| Država je mladim z določenimi ukrepi (npr. subvencije) dolžna pomagati pri osamosvojitvi oz. reševanju stanovanjskega problema. | ○ | ○ | ○ | ○ | ○ |
| Država je z zakoni, regulativami in priporočili dovolj učinkovita pri reševanju stanovanjske problematike ○ mladih. | ○ | ○ | ○ | ○ | |
| Država vodi socialno in pravično stanovanjsko politiko za mlade družine. | ○ | ○ | ○ | ○ | ○ |
| Država ima slabo (stanovanjsko) kreditno politiko za mlade. | ○ | ○ | ○ | ○ | ○ |

**Q18 - Prosim, če na spodnji lestvici od 1 do 5 označite stopnjo zadovoljstva z naslednjimi stvarmi v svojem življenju (pri čemer 1 pomeni zelo nezadovoljen, 2 nezadovoljen, 3 niti zadovoljen, niti nezadovoljen, 4 zadovoljen, 5 zelo oz. povsem zadovoljen).**

| | 1-zelo nezadovoljen | 2- nezadovoljen | 3-niti zadovoljen, niti nezadovoljen | 4-zadovoljen | 5-zelo oz. povsem zadovoljen |
|---|---|---|---|---|---|
| Kvaliteta življenja na splošno. | ○ | ○ | ○ | ○ | ○ |
| Trenutni bivalni pogoji. | ○ | ○ | ○ | ○ | ○ |
| Trenutno družinsko življenje. | | | | | ○ |

# TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA -

## RAZPRAVE 2

Avtorji:

BOJAN GRUM, TJAŠA DOBERLET, ALEŠ URBANČEK, MATJAŽ SAFRAN

*vedeUkmarjeva 6*
*SI-Ljubljana*

*Naslov publikacije:*
**Ttrajnostni razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture inživljenjskega zadovoljstva - RAZPRAVE 2**

*Avtorji:*
Bojan Grum, Tjaša Doberlet, Aleš Urbanček, Matjaž Safran

*Izdala in založila:*
Inštitut za nepremičninske vede, Ukmarjeva 6, 1000 Ljubljana

*Izdaja:*
Prva izdaja

*Recenzenta:*
Doc. dr. Božena
LipejDoc. dr.
Boštjan Aver

*Postavitev in tisk:*
Inštitut za nepremičninske vede, Ukmarjeva 6, 1000 Ljubljana

*Leto izdaje:*
2022

*Naklada:*
50 izvodov

Avtorske pravice ima Inštitut za nepremičninske vede

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

502.131.1:711.5(082)
364-3(082)

TRAJNOSTNI razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva : razprave 2 / avtorji Bojan Grum ... [et al.]. - 1. izd. - Ljubljana : Inštitut zanepremičninske vede, 2022

ISBN 978-961-95781-0-0
COBISS.SI-ID 106356739

# TRAJNOSTNI RAZVOJ URBANEGA PROSTORA SKOZI PARAMETRE RAZVOJA SOCIALNE INFRASTRUKTURE IN ŽIVLJENJSKEGA ZADOVOLJSTVA -

## RAZPRAVE 2

**Znanstvena monografija**

Avtorji:

**BOJAN GRUM**
**TJAŠA DOBERLETALEŠ URBANČEK**
**MATJAŽ SAFRAN**

Ljubljana, 2022

# Predgovor

Znanstvena monografija z *naslovom Trajnostni razvoj urbanega prostora skozi parametre razvoja socialne infrastrukture in življenskega zadovoljstva – razprave 2* predstavlja raziskovanje osnovnih konceptualnih pojmov: trajnosti razvoj, socialna infrastruktura, življensko zadovoljstvo. Znanstvena monografija je plod skupnega raziskovanja doktorskih študentov na programu Pravo in mangement nepremičnin, Nova univerza, Evropska pravna fakulteta v Ljubljani in sicer: Doberlet Tjaše, Urbanček Aleša in Safran Matjaža ter mentorja Grum Bojana.

Monografija skupaj z literaturo zajema osem poglavij in predstavlja temeljno izhodišče za nadaljna poglobljena raziskovanja v okviru raziskovalnega projekta: **Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukturein življenjskega zadovoljstva (ARRS, J5-3112).**

Prof. dr. Bojan GRUM

# KAZALO


**1 Uvod ..... 10**

**2 Vrednotenje trajnostnega razvoja ..... 11**

**3 Socialna infrastruktura ..... 14**

**4 Življenjsko zadovoljstvo ..... 15**

**5 Metodologija raziskovanja ..... 16**

5.1 Sistematični pregled literature (SPL) ..... 16

5.2 Kvantitativne metode raziskovanja (KVAL-MR) ..... 18

5.3 Kvalitativne metode raziskovanja (KVAN- MR) ..... 19

5.4 Združevanje metod ..... 20

**6 Raziskava, rezultati in interpretacija (RRI) ..... 22**

6.1 RRI 1: Socialna infrastruktura ..... 22

6.1.1 Sistematični pregled literature ..... 22

6.1.2 Kvalitativno raziskovanje ..... 37

6.1.3 Kvantitativno raziskovanje ..... 52

6.1.4 Sklep ..... 54

6.2 RRI 2: Trajnostna gradnja ..... 55

6.2.1 Sistematični pregled literature ..... 55

6.2.2 Kvalitativna raziskava ..... 63

6.2.3 Kvantitativna raziskava ..... 69

6.2.4 Sklep ..... 71

6.3 RRI 3: Razvoj urbanega prostora ..... 72

6.3.1 Sistematični pregled literature ..... 72

6.3.2 Kvantitvaina raziskava ..... 85

6.3.3 Kvalitativna raziskava ..... 86

6.3.4 Sklep ..... 87

**7 Sklep ..... 102**

**8 Literatura: ..... 103**

# 1 Uvod

Da bi se izognili negativnim posledicam delitve na starostne skupine oziroma generacije, se vedno bolj poudarja koncept enotnosti človeškega življenja, kar vodi v kakovostno življenje (Ramovš, 2013, Kobal Grum, Grum, 2020). Za razliko od vrste drugih, najpogostejših pristopov, ki parcialno analizirajo posamezno generacijo in njeno umestitev v bivalno okolje, sosesko in družbo skozi različne spektre pripadnosti, se bomo osredotočili na medgeneracijsko sožitje in na celostno enakovredno medgeneracijsko obravnavo. Pri tem izhajamo iz hipoteze, da »*vrednotenje trajnostnega razvoja urbanega prostora temelji na konsenzu generacij, ki skupaj tvorijo trajnostni in vzdržnosti medgeneracijski model razvoja bivalnega okolja, ki strmi k medgeneracijski blaginji*«. Urbani prostor bomo raziskovati večplastno, pri čemer pripisujemo interakcijam med uporabniki grajenega okolja in samim grajenim okoljem osrednji pomen. Urbanega grajenega okolje tako ne razumemo zgolj z njegove statične pozicije, temveč ga opredeljujemo kot dinamični preplet fizičnih, socialnih in psiholoških dimenzij odnosa med posameznikom in grajenim okoljem (Kobal Grum, 2019). Menimo, da je prav to temelj razvoja trajnostno razvojno naravnane stanovanjske politike, ki vodi v razumevanje trajnostnega mesta in skupnosti. Walker (2013) celo trdi, da oblikovalci stanovanjskih politik ne razumejo temeljnega pomena medgeneracijske solidarnosti, temveč ga dojemajo le kot finančno-rabni odnos. Meni, da razmišljanja in usmeritve, da so socialne investicije in izobraževanje predvsem za mlade, izhajajo iz preživele paradigme družbe treh generacij. To pa lahko povzroča nevarnost medgeneracijskega konflikta, saj s tem razdeljevalci javnih financ socialne države priviligirajo določene socialne skupine. Tako mlada kot stara generacija imata vrsto potreb, ki pa jih bo, npr. v času upočasnjene ekonomske rasti (ali recesije), še posebno pa v času pandemije (Covid- 19), vedno težje zadovoljiti iz virov socialne države (oz. na račun srednje generacije). Zato bo raziskava temeljila na pojmu medgeneracijske povezanosti ter na parametrih socialne infrastrukture in psiholoških dejavnikov, torej na povezavi med socialno infrastrukturo in blaginjo, kar odmerja nivo kakovosti življenja in dobrega počutja uporabnika oz. njegove blaginje. Kakovost življenja na splošno velja za pomemben kazalnik socialne trajnosti mesta in skupnosti in je večdimenzionalni koncept, ki je bil ocenjen in količinsko opredeljen z uporabo številnih objektivnih in subjektivnih kazalcev. Na področju družboslovja in urbanega oz. skupnostnega načrtovanja sta življenjsko zadovoljstvo in sreča pogosto uporabljena kot kazalca subjektivne kakovosti življenja (Du idr., 2017). Zadovoljstvo bivanja razumemo kot občutek, ko človek z bivanjem v svoji nepremičnini, mestu, soseski doseže tisto, kar potrebuje ali si želi (Mohit idr., 2010, Grum, 2019). Pojem kakovosti življenja, ki je danes v svetu eden dominantnih konceptov, je le stežka predstavljiv brez pojma kakovosti urbanega okolja, za katerega pa je vedno bolj značilno, da se ga oblikuje humano in naravnano k človeku (Grum in Temeljotov Salaj, 2016). Grajeno bivalno okolja in z njim povezano zadovoljstvo uporabnikov vključuje vrsto domen, kot so fizične lastnosti in značilnosti stanovanja, soseske, mesta, družbenega okolja in navezanosti na kraj (Fornata idr, 2010; Grum, Kobal Grum, 2020). Razvoj kvalitetnega, medgeneracijsko prijaznega bivalnega okolja, je problem, ki je vse pogosteje tematiziran tako na politični kot raziskovalni ravni (Grum, Temeljotov Salaj, 2016). Večina avtorjev meni, da se politika preveč zanaša na družino, gledano s komplementarnega vidika, znotraj katere naj se medgeneracijsko sožitje rešuje, država pa naj omogoči družinam funkcionalno pomoč, jo s tem razbremeni (Ramovš, 2013). Vendar pa, kot navaja Winkler (2017), se s tem samo navidezno zmanjša pritisk na družino in možnost za konflikte v njen, kot tudi med državo in družino. Trajnostna rešitev pa je, po našem mnenju, razumevanje vseh parametrov socialne infrastrukture, ki sestavljajo vzdržnosti medgeneracijski

model razvoja bivalnega okolja, ki strmi k kvaliteti življenja, zadovoljstvu uporabnikov urbanega okolja ter medgeneracijski blaginji. Ta tema je v zadnjem obdobju deležna vse večje pozornosti kakor tudi teoretična razmišljanja o vzrokih, posledicah in politikah, postajajo čedalje pomembnejša, kar napovedujejo tudi znani socialni, prostorski in ekonomski analitiki (Musterd, Gritsai, 2012; Bogataj idr., 2020). Za nedvoumno razumevanje uporabljenih pojmov v nadaljnjem raziskovanju naslova raziskave, vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva, v tej raziskavi skozi obstoječo literaturo definiramo konceptualne osnove pojmov in sicer: vrednotenje trajnostnega razvoja, socialna infrastruktura in življenjsko zadovoljstvo.

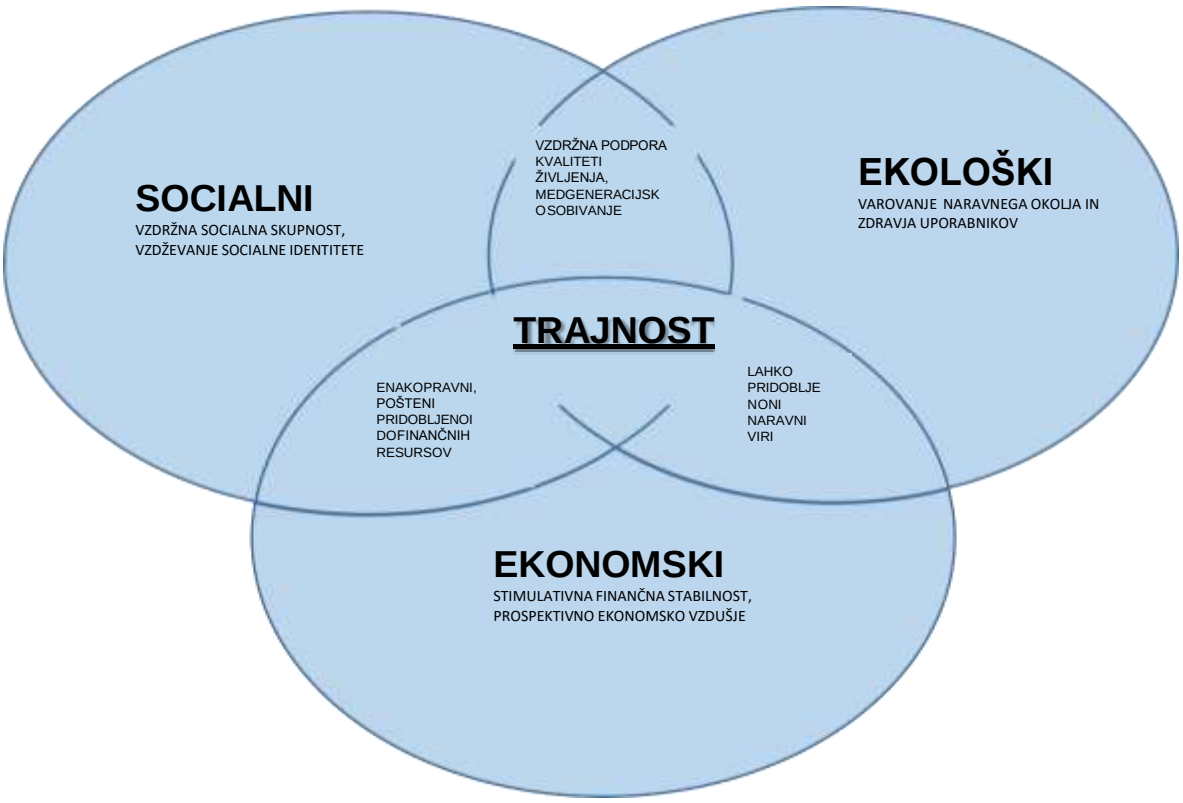
# 2 Vrednotenje trajnostnega razvoja

Razumevanje trajnostnega razvoja oz. trajnostne gradnje pa povzemamo skozi dva ključna mednarodna dokumenta, ki si prizadevata za trajnostni razvoj in sicer Agenda 2030 in pariški podnebni sporazum. Največkrat citirana definicija trajnostnega razvoja izhaja iz poročila Brundtlandine komisije iz leta 1987, ki je ta pojem definirala kot »razvoj, ki zadošča današnjim potrebam, ne da bi pri tem ogrožal možnosti prihodnjih generacij, da zadostijo svojim lastnim potrebam« (WCED, 1987, str. 43) in ga opredelila kot proces sprememb, v katerem se črpanje virov, politike investicij, usmerjenost tehnološkega razvoja in institucionalne spremembe prilagajajo potrebam človeštva danes in v prihodnosti ter pri tem ohranjajo ravnovesje ekosistemov. Trajnostni razvoj in aktivnosti na tem področju, v povezavi z izvedbo gradnje in umestitve le te v okolje in prostor, pa razumemo kot trajnostno gradnjo. Trajnostna gradnja je zagotovljena, ko so v sklopu vse-življenjskega pristopa pri načrtovanju, gradnji, upravljanju in razgradnji stavb in pripadajoče infrastrukture izpolnjene zahteve doseganja ekološke, ekonomske, družbeno-kulturološke, tehnične in procesne kakovosti, s čimer se minimizira ali izniči negativen vpliv stavb na naravo, družbeno okolje, zdravje ljudi, porabo naravnih virov in energije ter optimizira finančne izdatke skozi vso življenjsko dobo objekta, posledično pa tudi uporabnikov grajenega okolja. Leta 1994 je CIB (Conseil International du Batiment), mednarodna organizacija za raziskave in inovacije v gradbeništvu, definirala cilje trajnostne gradnje kot ustvarjanje in upravljanje zdravega delovnega in bivalnega okolja, ki temelji na uporabi učinkovitih virov in ekološko varnih smernicah gradnje (Kibert, 2008). Večina raziskav na tem področju se ukvarja s trajnostnim umeščanjem stavb v prostor zgolj skozi vidik energetsko smotrne rabe, ki trajnostne stavbe označujejo kot stavbe z majhno rabo energije iz naravnih virov skozi vsa obdobja njihovega življenjskega ciklusa, kot so: načrtovanje, gradnja, delovanje in uporaba, prenova in razgradnja (npr.: Krigsvoll idr., 2005; Rund in Thoyre, 2010; Torgal in Jalali, 2011; Marinčič, Kuhta in Šugman, 2016). Slednje pa je danes bolj ali manj v domeni tehnoloških in sistemskih rešitev (Konjar, Koprivnikar in Grum, 2020). Temu sledijo tudi metode vrednotenja trajnostne gradnje. Kot navaja Šijanec Zavrl (2015), obstaja v svetu preko 250 različnih metod za okoljsko in trajnostno vrednotenje stavb, ki pa praviloma med seboj niso primerljive. Marinič, Kuhta in Šuman (2016) v svoji raziskavi primerjave sistemov meril trajnostne prenove poslovnih stavb predstavijo tri uveljavljene modele vrednotenja trajnostne gradnje in sicer: LEED (Leadership in Energy and Environmental Design), BREEAM (Building Research Environmet Assesment Method) in DGNB (Deuche Gesellshaft fur Nachhaltiges Bauen). Navedene metode opredeljujejo predvsem dosežen nivo trajnostne gradnje, glede varčevanja energije oz. stopnje energetsko doseženih prihrankov. Tako tudi Warren-Myers (2012) poudarja omejeno uporabnost dosedanjih raziskav glede razmerja med trajnostno in tržno vrednostjo, kar pripisuje pomanjkanju zgodovinskih dokazov, podatkov ali informacij o količinsko merljivih učinkih tega novega trenda (trajnosti) na tržno vrednost. Okoljski certifikati so bilitorej ustvarjeni z namenom določitve meril in metodologije, s pomočjo katerih se ocenjuje raven trajnosti (Brown idr., 2006). Takšni certifikati ponujajo potrošnikom in vlagateljem podlago za primerjavo med naložbami ali najemninami ((Boyd idr., 2006), (Fedrizzi idr., 2016)). Rezultati vrednotenja pa so doseženi učinki (največkrat energetski prihranki) v primerjavi s standardno učinkovitostjo (Mangialardo idr., 2019). Vrednotenje trajnostne gradnje pa mora zajemati poleg vpliva na naravno okolje tudi ekonomski in socialni vidik (Konjar, Koprivnikar, Grum, 2020). Obnova ali novi gradbeni posegi zato morajo vključevati intervencije, katerih cilj je doseči največjo okoljsko trajnost obhkratnem zagotavljanju najvišje ekonomske vrednosti in večjo blaginjo posameznikov (Brown idr., 2006). Tudi

Plut (2004) navaja, da so za koncept trajnostnega razvoja ključne tri razsežnosti: ekonomska
– maksimiziranje humanega blagostanja znotraj značilnosti obstoječih virov in tehnologij; ekološka – zaščita integritete ekoloških podsistemov, ki so kritični za splošno stabilnost globalnega ekosistema in sociološka – upošteva človeško naravo ključnih nosilcev in vzorcev socialne organizacije, ki so temeljni za dosego ciljev trajnostnega razvoja. Podobno navaja tudi večina poznejših raziskav, da je za zagotavljanje trajnostnega razvoja potrebno upoštevati tri elemente: ekonomski element, okolje in družbeno socialne elemente (Smernice za trajnostno gradnjo, 2013; Mangialardo idr., 2019). Zato v naši raziskavi privzemamo mnenje Browna in ostalih (2006), ki navajajo, da morajo gradbeni posegi v prostor slediti ciljem doseganja največje okoljske trajnosti ob hkratnem zagotavljanju najvišje ekonomske vrednost in večjo blaginjo posameznikov. Številne modernejše raziskave kažejo, da bi pri vrednotenju trajnostno grajenih stavb morali upoštevati pozitivne učinke le teh na ljudi, okolico in

habitat (Ciora, Anghet in Maier, 2016). Nekateri avtorji navajajo, do so finančne koristi trajnostnih stavb 10-krat večje od povprečne začetne naložbe, ki jo investitorji zahtevajo za zasnovo in izgradnjo trajnostne zgradbe (npr. Nalewaik, 2008; Yun, 2014).

Prednosti trajnostne gradnje so številne in so razvrščene na tri področja: okoljsko (zmanjšanje emisij, ohranjanje voda, zmanjšanje odpadkov, ipd.), ekonomsko (gospodarske koristi, prihranek energije, vode, povečanje vrednosti nepremičnin, ipd.) in socialno (izboljšano zdravje, boljše šole, več rekreacijskih površin, ipd.) (Reddy, 2016). Temelj trajnostne gradnje prikazuje spodnja slika.



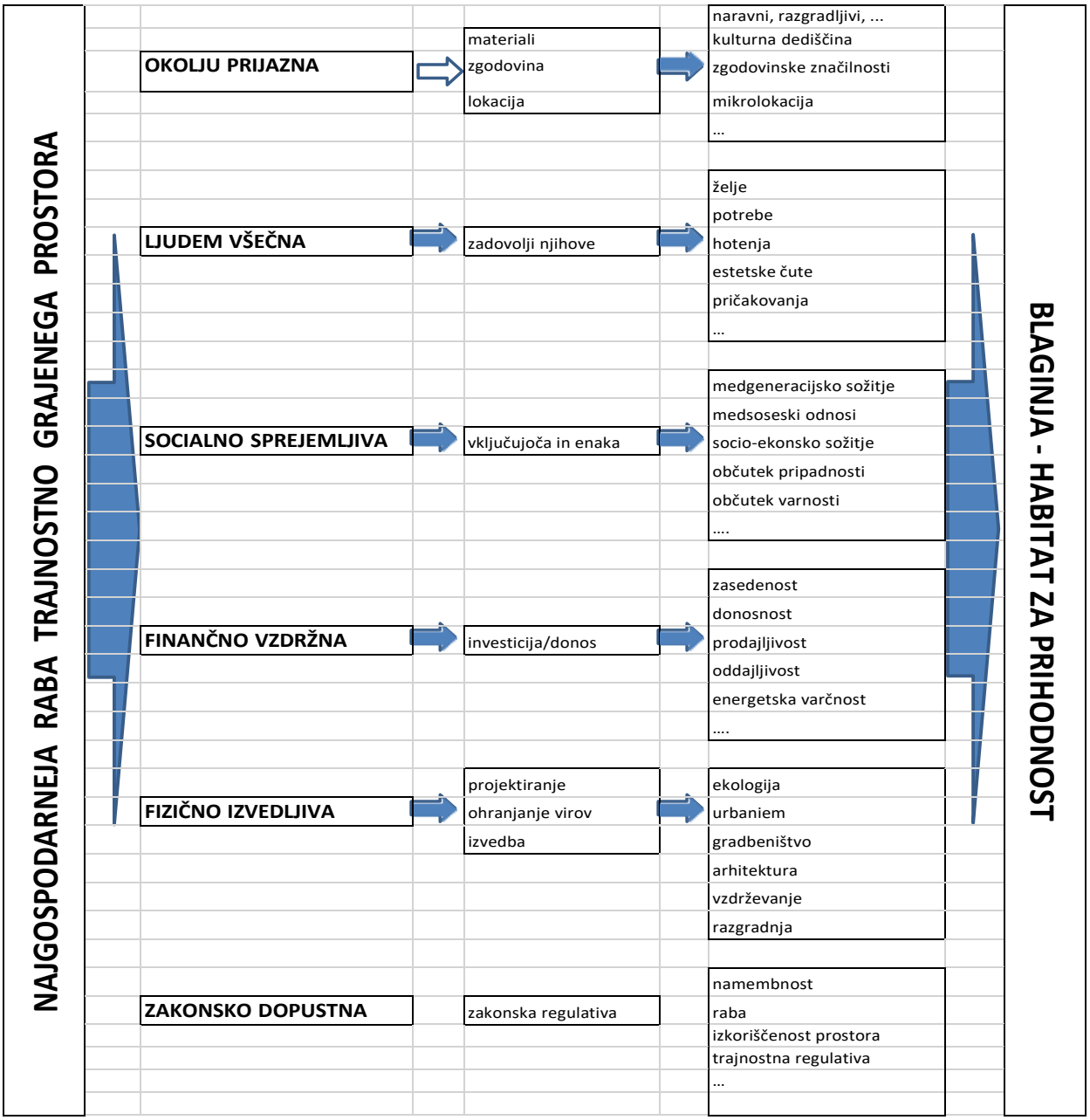

Slika 1: Temelj trajnostne gradnje (Prirejeno po Reddy, 2016)

Pregled literature v splošnem opredeljuje tri temeljne cilje, ki bi morali oblikovati okvir za izvajanje trajnostnega načrtovanja in gradnje stavb, ob tem pa upoštevati predhodno opredeljena načela trajnostne problematike (socialne, okoljske, gospodarske in zakonske). Ti cilji so: ohranjanje virov, stroškovna učinkovitost in zasnova, prilagojena človeku.

Vrednost nepremičnine izvira iz njegove najgospodarnejše rabe (MSOV, 2020), ki je definirana kot fizično mogoča, finančno izvedljiva, zakonsko dovoljena in ima za posledico največjo vrednost. Le ta največkrat sledi presečni tržni ekonomski vrednosti. Trajnostnega vrednotenja grajenega prostora pa ni mogoče razumeti zgolj skozi presečni datum vrednotenja, ampak integralno skozi razumen časovni interval življenjske dobe objekta oz. grajenega okolja (Konjar, Koprivnikar in Grum, 2020). Navedeno pomeni, da je iz osnovne definicije izpeljana najgospodarnejša raba trajnostno grajenega prostora tista gradnja, ki je okolju prijazna, ljudem všečna, socialno sprejemljiva, finančno vzdržna, fizično mogoča in zakonsko dopustna, s ciljem doseči največjo okoljsko trajnost ob hkratnem zagotavljanju najvišje ekonomske

vrednosti in najvišje blaginje uporabnikov.

Razčlenitev prikazuje Slika 2.




Slika 2: Najgospodarnejša raba trajnostno grajenega okolja

Prepoznavanje vpliva nove tržne sile (trajnosti) in njegove različne oz. nove značilnosti, ki bi jih lahko imela trajnostno grajena stavba, predstavljajo ključno vprašanje za pripis dejanske vrednosti trajnostno grajeni stavbi (Runde in Thoyre, 2010). Razumevanje najgospodarnejše rabe trajnostno grajenega prostora je ključnega pomena tudi zato, ker s stališča prakse vrednotenja razmerje med trajnostjo in tržno vrednostjo še vedno ni prepričljivo (Warren-Myers, 2012). Stavbe in grajeno okolje igrajo pomembno vlogo v naravnem okolju. Tako lahko npr. zelene zgradbe zmanjšajo negativne vplive na okolje in ponudijo koristi, povezane z zdravjem in podjetjem (Korkmaz idr., 2009; Xia idr., 2013). Trajnostne zgradbe učinkoviteje uporabljajo energijo, zemljo in vodo ter proizvajajo manj odpadkov in onesnaževanja kot običajne stavbe (Torgal in Jalali, 2011), kar blagodejno deluje na habitat. Družbene koristi trajnostnega oblikovanja stavb so vedno bolj povezane z izboljšanjem kakovost življenja, zdravja in dobrega počutja (Behnam, 2017). Visokozmogljive trajnostne zgradbe zagotavljajo najvišjo kakovost bivanja za posameznika in prav tako pozitivno učinkujejo na družbo (Behnam, 2017).

Zato imajo trajnostne zgradbe boljši zrak v zaprtih prostorih, kakovost, udobje in ekonomičnost sta večji, prav tako trajnostna gradnja bolj verjetno prepriča kupce v neposredni prodaji s svojim vplivom na njihovo zdravje in srečo (Behnam, 2017).

# 3 Socialna infrastruktura

Strinjamo se z Raupeliene (2017), ki pravi, da socialna infrastruktura nima enotne definicije. Berry (2011) socialno infrastrukturo opredeljuje zelo široko in njen pomen razlaga kot proces, katerega naloga je zadovoljevanje posameznikov in družbenih osebnih in družbenih potreb, skrb za asocialno interakcijo ter celostni razvoj posameznika in družbe. Infrastruktura je pravzaprav gonilna sila delovanja družbe (Roelich, Knoeri idr., 2015). Lahko rečemo, da je družbena infrastruktura sinonim za družbene vire (Grum, Temeljotov Salaj, 2013). V prispevku obravnavamo družbeno infrastrukturo kot fizično in mentalno strukturo, ki je zgrajena na podlagi nakazanih potreb uporabnikov in se meri s stopnjo zadovoljstva (kvaliteta življenja) med njimi, ki tvori družbeno vzdržnost. Socialna razsežnost je eden od stebrov trajnosti (Sierra idr., 2018). Ko gre za trajnost, lahko dejansko govorimo o scenariju. Scenarij je mogoče razumeti kot podporno orodje in fokus za ukrepe, ki krepijo trajnost (Faure idr., 2017). Prihodnji scenariji se pogosto uporabljajo za reševanje dolgoročnih izzivov, za katere sta značilna negotovost in zapletenost, saj lahko pomagajo pri raziskovanju različnih alternativnih prihodnjih poti. Scenariji so zato lahko uporabno orodje za podporo politiki in usmerjanje ukrepov v smeri trajnosti (Faure idr., 2017).

Zakaj je socialna infrastruktura tako pomembna? Odgovor je preprost. Trenutno je ena izmed najbolj raziskanih tem, predvsem na področju družbenega razvoja skupnosti (soseska, regija, država). Indikator družbenega razvoja je lahko raven socialne infrastrukture, vključno s podjetji zdravstvenega varstva, izobraževanja, stanovanjskih in komunalnih storitev, kulture, komunalnih storitev in javnih storitev (Pogrebskyi, 2016). Definicije socialne infrastrukture so bile največkrat prilagojene trenutnim politikam, po drugi strani pa so številni znanstveniki na svojih ozkih področjih podali mnenja o tem, kaj bi socialna infrastruktura lahko pomenila. To je razumljivo, saj ima vsak posameznik in vsaka skupnost subjektivno mnenje o konceptu (Wai, 2012) in je odvisno od tega, čigav namen ali agendi služi (Chan idr., 2016). Vendar pa imajo vsi diskurzi v vseh razpravah, razpravah in poskusih skupnih definicij eno skupno točko in domnevajo, da je družbena infrastruktura »lepilo, ki drži skupnosti skupaj« (SGS Economics & Planning, n.d.).

Socialna infrastruktura je eden od prevladujočih dejavnikov, ki zagotavlja zadovoljevanje osnovnih človeških potreb ter razvoj scene in njenega ozemlja (Frolova idr., 2016). Učinkovit in trajnosten razvoj socialne infrastrukture zagotavlja socialno varnost, medgeneracijsko sožitje in socialno stabilnost. Osredotočenost na določeno ozemlje celotnega procesa preživljanja prebivalstva, teritorialna lokalizacija objektov družbene infrastrukture potrjuje učinkovitost avtonomije lokalne samouprave od vladnih institucij pri vprašanjih lokalnega značaja (Frolova idr., 2016). Družbena infrastruktura je kompleksen, večplasten kompleks, ki združuje dejavnosti institucij, organizacij, uradov občine za zadovoljevanje osnovnih potreb in interesov njenih prebivalcev (Frolova idr., 2016).

Glavne dejavnike, ki določajo razvoj družbene infrastrukture, bi lahko označili kot politične, družbene, ekonomske dejavnike ter dejavnike kulture in duhovne sfere (Frolova idr., 2016). Zakoni, predpisi in druga zakonodaja so politični dejavniki, ki so bistveni pri razvoju družbene infrastrukture. Hoxha idr. (2014) ugotavljajo, da politični pritiski pomembno pozitivno vplivajo na zaznave ne le prebivalcev, temveč tudi prostorskih načrtovalcev, kar lahko negativno vpliva na razvoj družbene infrastrukture. Po drugi strani pa družbeni dejavniki označujejo raven in življenjski standard

prebivalstva, ki kot celota določa potrebe družbenih skupin pri razvoju družbene infrastrukture. Družbeni vpliv infrastruktur je odvisen od njenega življenjskega cikla (načrtovanje, gradnja, delovanje in odlaganje) (Sierra et al., 2017). Boge et al. (2018) so ugotovili, da so najpomembnejši dejavniki med načrtovanjem v zgodnji fazi, ki vplivajo na zaznano uporabnost stavb in ustvarjanje življenjske vrednosti, ukrepi, ki spodbujajo stroške okolja in življenjskega cikla (LCC), FM, prilagodljivost in podobo. Projektiranje stavb in socialne infrastrukture v zgodnji fazi načrtovanja je zato pomembno. Boge in Temeljotov Salaj (2017) sta ugotovila, da poudarek na razmišljanju o družbeni infrastrukturi v zgodnji fazi projektiranja grajenega okolja bistveno poveča kasnejšo vrednost objekta oziroma grajenega okolja, tako za uporabnike kot za celotno skupnost. Salaj idr. (2018) predstavljajo možnosti za upravljanje objektov (FM) na ravni aktivnejšega sodelovanja pri razvoju

# 4 Življenjsko zadovoljstvo

Različni posamezniki, institucije, raziskovalni projekti in discipline so razvili različne definicije kakovosti življenja, ki služijo različnim kontekstom in namenom (Ryan in Deci, 2001; MacKerron, 2011). Po mnenju OECD (2017) je kakovost življenja večkompleksen pojav, ki ga sestavlja 11 dimenzij: stanovanje, dohodek in bogastvo, zaposlitev in zaslužek, socialne povezave, izobrazba in spretnosti, kakovost okolja, državljanska angažiranost in upravljanje, zdravstveni status, subjektivni kakovost življenja, osebna varnost in ravnovesje med poklicnim in zasebnim življenjem.

V psihologiji so raziskave o kakovosti življenja odražale dva komplementarna pristopa, ki ju na splošno imenujemo hedonična in evdajmonična tradicija (Ryan in Deci, 2001; Waterman, 1993). Hedonistična tradicija običajno postavlja v središče prijetnih izkušenj kot poti do sreče. Kakovost življenja se ukvarja z ravnovesjem med pozitivnim in negativnim vplivom, skupaj z zaznanim zadovoljstvom z življenjem (Diener, 2000; Diener idr., 1999). Evdaimonska tradicija zagovarja, da sta vrlina in izpolnjevanje človeških potencialov ter samouresničitev v jedru kakovosti življenja (Deci in Ryan, 2008; Waterman, 1993).

Posebno zanimanje za našo raziskavo je stanovanjska kakovost življenja, ki je v korelaciji z bivalnim zadovoljstvom. Ko človek v svojem kraju in okolici doseže vse, kar želi, in to zadovoljuje njegove življenjske potrebe, izraža visoko stopnjo splošnega zadovoljstva (Mohit idr., 2010). Bivalno zadovoljstvo se odraža v kakovosti življenja uporabnika. Bivalno zadovoljstvo razumemo kot kompleksen izraz, saj je njegov natančen pomen odvisen od kraja, časa in namena. Ti profili soseske so na splošno izpeljani iz objektivnih meril in socialno-demografskih napovedovalcev disfunkcije in nezadovoljstva (Adriaanse, 2007). Zanuzdana idr. (2012) podajajo kratek pregled literature s področja stanovanjskega in bivalnega zadovoljstva. Empirične študije, ki se ukvarjajo z zadovoljstvom v stanovanju, imajo enega od dveh glavnih pristopov (Weidemann, Anderson, 1985). Nekateri menijo, da je bivalno zadovoljstvo napovedovalec vedenja. Lahko napoveduje vedenje, kot je selitev ali izboljšava doma. Drugi pristop uporablja bivalno zadovoljstvo kot merilo kakovosti stanovanja (Amérigo, Aragonés, 1997; Parkes idr., 2002; Pinquart, Burmedi, 2004). Raziskovalci si prizadevajo identificirati ključne dejavnike, ki določajo raven zadovoljstva uporabnikov v bivalnem okolju. Izpostavljajo številne dejavnike, kot so premoženjski status, fizične značilnosti stanovanj in sosesk, družbene vezi in socialno-demografske značilnosti. Drugi pristopi združujejo oba pristopa. Uporabili so večdimenzionalno skaliranje in razvili splošni model stanovanjskega zadovoljstva, ki postavlja cilje uporabnikov v središče vrednotenja bivalnega okolja (Adriaanse, 2007). Tipičen pristop je sestava potencialno najbolj zaželenih lastnosti, nato pa te lastnosti stanovalci ovrednotijo glede na pomen. Številne empirične študije so preučevale značilnosti uporabnikov (bodisi kognitivnih ali vedenjskih) ali okolja, tako fizičnega kot socialnega. Le malo jih je te spremenljivke organiziralo v model, da bi olajšalo analizo razmerij med temi značilnostmi (Parkes idr., 2002; Grum, Kobal Grum, 2015; Temeljotov Salaj et al. 2018). Grzeskowiak idr. (2006) so poudarili, da smo z uporabo koncepta življenjskega cikla potrošnik/izdelek lahko ločili smiselne interakcije, ki jih domači prebivalec doživlja s stanovanjem, in raziskali, kako stanovanje prispeva k kakovosti življenja stanovalca. Osnovna predpostavka življenjskega cikla potrošnika/proizvoda v zvezi s stanovanji je, da se kakovost stanovanja lahko izboljša, če je stanovanje označeno na načine, ki zagotavljajo zadovoljstvo v vseh šestih fazah življenjskega cikla potrošnika/izdelka (nabava, priprava, posest, poraba, vzdrževanje in odlaganje) (Bardo, Dokmeci, 1992).

Naša ambicija je upoštevati tudi psihološki in socialni del tega, ki vključuje tako razmišljanje in občutkeo kakovosti življenja kot tudi povezanost zgrajenega okolja z vedenjem zadovoljstva z življenjem. V našem modelu želimo te dele razdeliti na: sociodemografske značilnosti uporabnikov stavbnega okolja, njihovo kakovost urbanega življenja in njihovo subjektivno kakovost življenja.

Številni avtorji, kot so Baumeister in Leary (1995), Engle in Altschuld (2014), so opozorili, da je trebakakovost življenja meriti z razmišljanjem o potrebah; predvsem je treba upoštevati potrebe; pod kakršnimi koli pogoji morajo potrebe delovati na razmišljanje, občutke in vedenje; če potrebe niso

zadovoljene, je treba upoštevati negativne posledice. Kadar potrebe niso zadovoljene, bi se moral njen objektivni pomen povečati ali zmanjšati. Avtorji so tudi opozorili, da bi morale biti potrebe skupne za vse. Kulbickienė (2004) meni, da so ravno potrebe tiste, ki narekujejo in usmerjajo odločitve prebivalstva. Po drugi strani pa se vpliv obstoječe socialne infrastrukture na te potrebe in zato analiza potreb razume kot povpraševanje po novih storitvah in objektih (Weber idrl., 2016). Analiza potreb služi za različne namene ocenjevanja socialne infrastrukture. Identifikacija potreb je proces opisovanja
»problemov« ciljne populacije in možnih rešitev teh problemov (Vaznonienė, Pakeltienė, 2017).Analiza potreb se torej osredotoča na prihodnost oziroma na to, kar bi bilo treba narediti, in ne na to, kar je bilo storjeno (Vaznonienė, Pakeltienė, 2017).

# 5 Metodologija raziskovanja

## 5.1 Sistematični pregled literature (SPL)

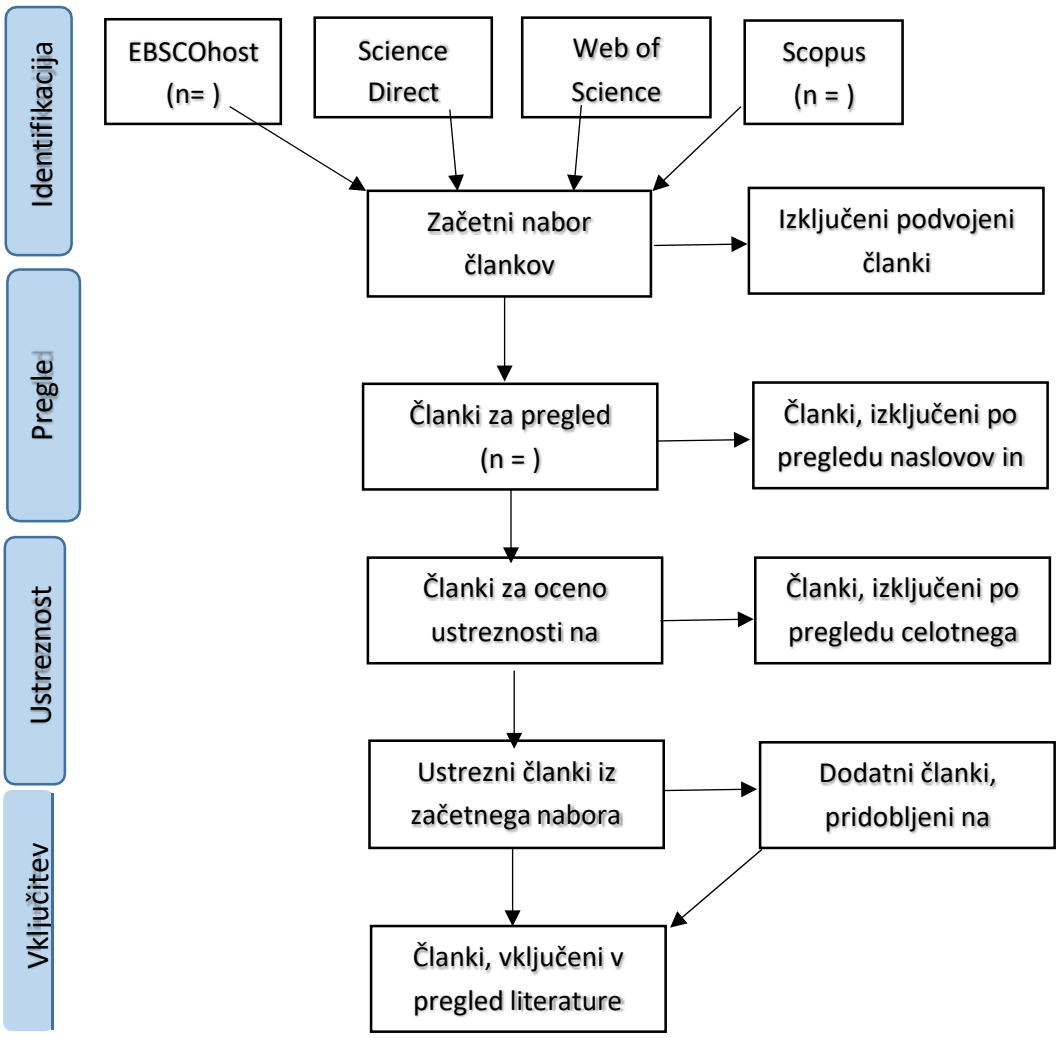
Sistematični pregled literature (SPL) je raziskovalna metoda. Predstavlja identifikacijo in kritično ocenjevanje vseh obstoječih raziskav kot tudi zbiranje in analiziranje podatkov. Namen sistematičnega pregleda je identifikacija empiričnih dokazov, ki odgovarjajo zastavljenim hipotezam in raziskovalnim vprašanjem (Snyder, 2019). Sistematični pregled literature je proces zbiranja in kritičnega analiziranja obstoječih raziskovalnih študij ali člankov.

Rezultat sistematičnega pregleda je:

1. je posebna vrsta pregleda, ki kritično ovrednoti in povzame vsebino iz vseh razpoložljivih primarnih študij z namenom, da odgovori na raziskovalno vprašanje oz. raziskovalna vprašanja
2. uporablja jasno definirano metodologijo pri iskalni strategiji in selekciji študij,
3. proces in odločitve so natančno dokumentirane,
4. dobimo enake rezultate pri ponovitvi raziskave.

Raznolikost uporabljene terminologije pomeni, da se lahko celoten potencial teh vrst pregledov izgubi med zmedo nejasnih in napačno uporabljenih izrazov.

Shema raziskovalnega procesa, t.i. PRIZMA diagram, je prikazana na sliki 3.

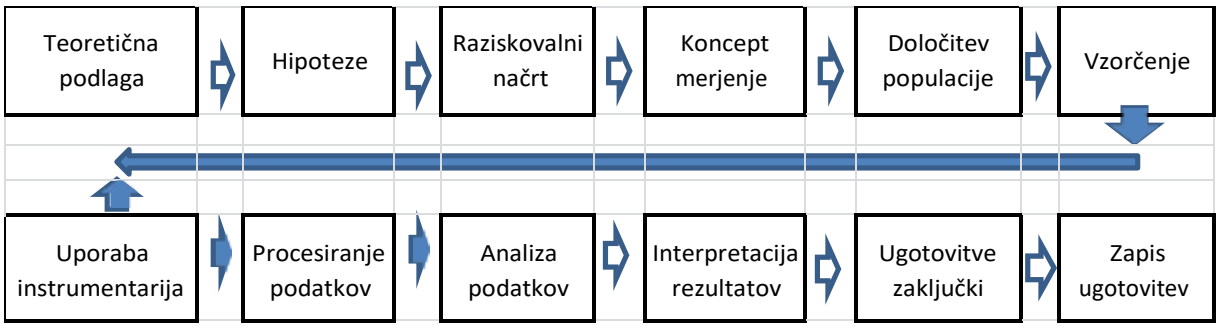



Slika: PRIZMA diagram s strategijo iskanja člankov (Zagorc Kocjan, Kekec, 2020)

## 5.2 Kvantitativne metode raziskovanja (KVAL-MR)

Kvantitativno raziskovanje najpogosteje enačimo z anketo. Te raziskave običajno sledijo deduktivni metodi, iz katere izhaja testiranje hipotez s podatki, ki so za ta namen zbrani (McDaniel, Gates, 2008). Tehnike analize podatkov v kvantitativnih raziskavah temeljijo na statistiki. V splošnem statistiko delimo na štiri temeljna področja: biostatistika, družboslovna statistika, upravna statistika in matematična statistika. Pri tehničnih disciplinah, ki se ukvarjajo s prostorom (prostorsko planiranje in načrtovanje), trajnostno gradnjo, najgospodarnejšo izrabo prostora, vrednotenje prostora in nepremičnin, uporabljamo družboslovno statistiko.

Potek kvantitativne metode je prikazan na spodnji sliki 4.




Slika 4: Potek kvantitativne metode (Prirejeno po Meško in Roblek, 2013, str. A4).

S kvantitativno metodologijo zbiramo podatke na vzorcu anketirancev, ki jih nato povzemamo na celotni populaciji. Kvantitativne raziskave uporabljamo za zbiranje numeričnih podatkov: štetje, razvrščanje, kot tudi utemeljevanje povezanosti in napovedovanja pojavov v populaciji**.** Rezultate, pridobljene s statistično analizo prikažemo v poročilih. Značilnost kvantitativnih metod je standardiziran vprašalnik oziroma niz identičnih vprašanj, ki jih postavljamo anketirancem, kar v nadaljevanju omogoča statistično analizo pridobljenih podatkov (internetni vir 2). Najpogosteje se uporablja telefonsko anketiranje, osebno anketiranje ali spletno anketiranje. Zanimiva je tehnika snežne kepe (Lobe, 2006). Pri uporabi te vrste vzorčenja se za izgradnjo vzorca preučevane skupine uporabljajo osebna poznanstva. Izbere se manjši vzorec oseb, ki odgovarjajo na vprašalnik, obenem pa k izpolnjevanju povabijo svoje znance (Lobe, 2006). Vsak naslednji anketiranec naj bi zagotovil nekaj novih anketirancev. Prednost tega vzorčenja je predvsem v hitrem izpopolnjevanju vzorca, ki pa je odvisen samo od začetne izbire populacije. To je obenem tudi slabost, saj po začetni izbiri vzorca nad njim nimamo več nadzora.

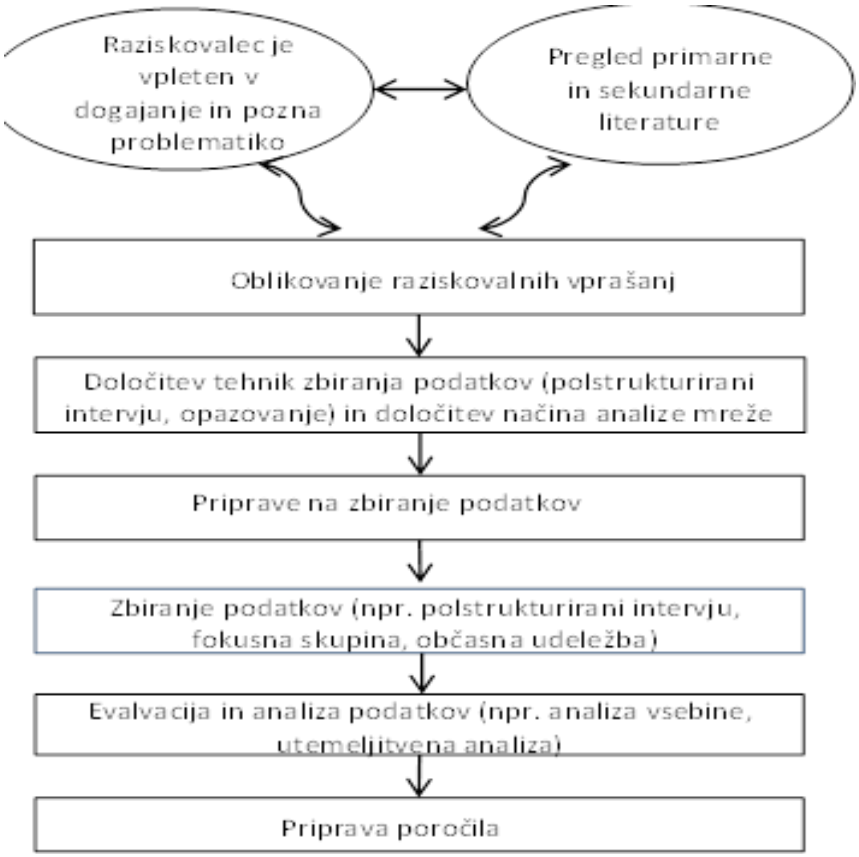
Pri kvantitativnih tehnikah na obravnavanem znanstvenem področju tehnike danes pri vprašalnikih najpogosteje uporabljamo t. i. Likertovo mersko lestvico (internetni vir 1), ki jo je leta 1932 razvil ameriški psiholog Rensis Likert in s tem spremenil način raziskovanja posameznikovih stališč. Originalno za Likertovo lestvico velja izražanje stališč oz. ocenjevanje strinjanja sklopa trditev s pomočjo 5-stopenjske merske lestvice. Pri tem ena stran lestvice predstavlja odgovor *Popolnoma se strinjam*, druga pa *Sploh se ne strinjam*. Bistveni namen razvoja te lestvice je bil možnost merjenja posameznikovih stališč s pomočjo ordinalne merske lestvice (ocenjevanje trditev z ocenami od 1 do 5) (internetni vir 1). Ocenjevalna lestvica je tehnika, ki jo uporabljamo za ugotavljanje stopnje izraženosti proučevanih pojavov, npr. stališč, interesov,

vrednosti, zadovoljstva ipd. Poleg omenjene številne ocenjevalne lestvice pa pogosto uporabljamo tudi opisno ocenjevalno lestvico, npr. a) popolnoma drži,
b) skoraj vedno drži, c) ne morem se odločiti, č) skoraj nikoli ne drži, d) nikakor ne drži.

## 5.3 Kvalitativne metode raziskovanja (KVAN- MR)

Kvalitativne metode raziskovanja (skupinske diskusije, intervjuje, spremljano nakupovanje, spletne forume, etnografijo ipd.) uporabimo, ko želimo pridobiti poglobljen uvid v percepcijo, prakse, želje in pričakovanja potrošnikov. Ko želimo odgovoriti na vprašanja tipa: Zakaj? Kako? Na kakšen način? (Denzin in Lincon, 2000). Najpogosteje pa te metode enačimo z intervjujem (Nahtigal, Grum, 2015). Kot navajata Kordeš in Smrdu (2015) kvalitativno raziskovanje išče intenziven ali dolgotrajen kontakt z vsakodnevnimi situacijami, ki so običajne, normalne, odražajo vsakdanje življenje oseb, skupin, družb, organizacij. V splošnem preučuje, kako ljudje v določenih situacijah razumejo, razlagajo vsakodnevne dogodke in nanje tudi reagirajo. Raziskovalec želi dobiti celosten vplogled v kontekst, ki ga preučuje, njegovo logiko, ureditve in pravila. Želi »od znotraj« zajeti podatke o zaznavah akterjev, in sicer s pozornostjo, empatičnim razumevanjem, tako, da odstrani vse predsodke (prekoncepcije) o raziskovanih področjih. Pri tem je raziskovalec glavni merilni instrument (Kordeš, Smrdu, 2015). Raziskovalni načrtje prikazan na sliki št. 5 in 6.

**Slika 5: Primer shemtskega prikaza kvalitativne študije**




Slika 6: Splošen raziskovalni načrt

## 5.4 Združevanje metod

Po Mesecu (1998) se kvalitativno in kvantitativno raziskovanje razlikujeta glede na značilnosti usmeritve in poteka raziskave. Te značilnosti lahko razporedimo v tri širše skupine: (1) odnos do vprašanja, čigav položaj je izhodišče in težišče raziskave, raziskovalčev ali raziskovančev, in kaj je namen raziskave (strateške značilnosti); (2) potek raziskave (metodološke značilnosti); (3) razmerje med raziskavo in teorijo (značilnosti oblikovanja teorije).

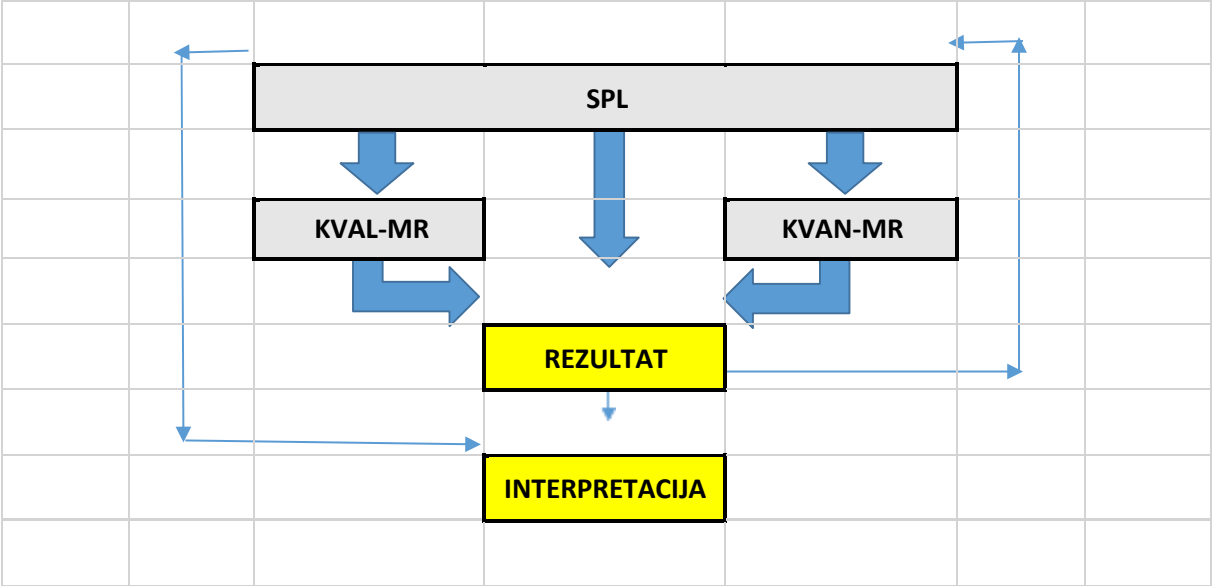
Primerjalna tabela (internetni vir 3)

| **Podlaga za primerjavo** | **Kvalitativne raziskave** | **Kvantitativna raziskava** |
|---|---|---|
| Pomen | Kvalitativna raziskava je metodaraziskovanja, ki razvija razumevanje človeških in družbenih ved, da bi našla način,kako ljudje mislijo in čutijo. | Kvantitativna raziskava je raziskovalnametoda, ki se uporablja za generiranje numeričnih podatkov in trdnih dejstev zuporabo statistične, logične in matematične tehnike. |
| Narava | Holistična | Posebnost |

| | | |
|---|---|---|
| Pristop | Subjektivno | Cilj |

| | | |
|---|---|---|
| Vrsta raziskave | Raziskovalno | Zaključek |
| Utemeljitev | Induktivno | Deduktivno |
| Vzorčenje | Namensko | Naključen |
| Podatki | Verbalno | Merljivo |
| Povpraševanje | Procesno usmerjen | Usmerjeni k rezultatom |
| Hipoteza | Ustvarjeno | Testirano |
| Element ianalize | Besede, slike in predmeti | Številčni podatki |
| Cilj | Raziskovanje in odkrivanje idej, kise uporabljajo v tekočih procesih. | Preučite vzročno-posledično razmerjemed spremenljivkami. |
| Metode | Nestrukturirane tehnike, kot so poglobljeni intervjuji, skupinskerazprave itd. | Strukturirane tehnike, kot so raziskave,vprašalniki in opazovanja. |
| Rezultat | Razvija začetno razumevanje | Priporoča končno pot |

Kot navaja Lobe (2006), združevanje kvalitativnih in kvantitativnih metod postaja vse pogosteje uporabljen raziskovalni načrt v družboslovju, tako na aplikativnem in akcijskem kot tudi na temeljnem znanstvenem področju. Shema zduževanja metod je prikazana na sliki 7.




Slika 7: Shema združevanja metod

# 6 Raziskava, rezultati in interpretacija (RRI)

## 6.1 RRI 1: Socialna infrastruktura

### 6.1.1 Sistematični pregled literature

Sistematični pregled literature je raziskovalna metoda. Predstavlja identifikacijo in kritično ocenjevanje vseh obstoječih raziskav kot tudi zbiranje in analiziranje podatkov. Namen sistematičnega pregleda je identifikacija empiričnih dokazov, ki odgovarjajo zastavljenim hipotezam in raziskovalnim vprašanjem. (Snyder, 2019, str. 334). Uporabljeni so sledeči koraki raziskave:

1. Korak: Pridobivanje člankov.
2. Korak: Identificiranje primernih člankov z branjem naslova.
3. Korak: Identificiranje primernih člankov z branjem naslova, povzetka in ključnih besed.
4. Korak: Primarne študije – ugotovitev dejanske vsebine članka.

Po pregledu baz je bila za namen raziskave pri tej raziskovalni nalogi izbrana baza ScienceDirect. Izbrana ključna beseda je bila socialna infrastruktura (social infrastructure). V prvem koraku je bilo v bazi ScienceDirect izvedeno iskanje z vnosom ključne besedne zveze brez navednic. Pridobljeno je bilo 219.986 zadetkov.

Tabela 1: Nabor zadetkov

| Ključna beseda | Predmet raziskovanja | Število zadetkov |
|---|---|---|
| social infrastructure | | 219 986 |
| "social infrastructure" | | 4 962 |
| "social infrastructure" | Engineering | 430 |

Nadaljnje je bilo iskanje izvedeno z vnosom besedne zveze z navednicami. Najdeno je bilo 4 962 zadetkov. V tem koraku smo identificirali primerne članke z branjem naslova. Ugotovljeno je bilo, da je baza preobširna in so bile zato uvedene prilagoditve, ki so predstavljene v naslednjem koraku. V naslednjem koraku smo v podatkovni bazi določili predmet raziskovanja: Engineering. Število zadetkov v tem koraku se je zmanjšalo na 430. Po identifikaciji primernih člankov z branjem naslova smo ugotovili, da so kriteriji ustrezni. Nato je bilo izvedeno identificiranje primernih člankov z branjem naslova, povzetka in ključnih besed. V naslednjem koraku smo identificirali primerne članke z branjem naslova, povzetka, ključnih besed in dejanske vsebine članka. Izbrano je bilo 15 člankov. Vsi članki so bili tipa Research article.

V bazi primernih člankov je bilo precej člankov slovenskih avtorjev, ki bi vsebinsko ustrezali zahtevam raziskovalne naloge. V tej raziskovalni nalogi smo smiselno upoštevali določila publikacije Tehnična navodila za izdelavo zaključnih del (Rozman, Stopar, 2021, str. 24). V publikaciji je navedeno, da je minimalno število ustreznih virov v doktorski disertacij 100 enot in od tega mora biti najmanj 1/3 tujih virov. S tem namenom smo v to raziskovalno nalogo vključili le 6 člankov slovenskih avtorjev. 9 člankov tujih avtorjev predstavlja večinski delež virov.

Tabela 2: Primarne študije (število objav po posameznih letih)

| Leto izdaje | Število objav | Delež |
|---|---|---|
| 2021 | 3 | 0,20 % |
| 2020 | 2 | 0,13 % |
| 2019 | 1 | 0,07 % |
| 2016 | 4 | 0,27 % |
| 2015 | 4 | 0,27 % |
| 2013 | 1 | 0,07 % |

V nadaljevanju so prikazani osnovni podatki 15 najustreznejših člankov, ki so zbrani v pregledni tabeli.

Tabela 3: Primarne študije (osnovni podatki člankov)

| | **Leto izdaje** | **Avtor** | **Publikacija** | **Naslov** | **Ključne besede** | **Povzetek** |
|---|---|---|---|---|---|---|
| 1 | 2021 | David Bogataj, Valerija Rogelj, Alenka Temeljotov Salaj | IFAC PapersOnLine 54-1 (2021) 942–947 | Social Infrastructure supporting Ambient Assisted Living in a Smart Silver City: Literature Review and Research Agenda | smart city, ambient assisted living, health care, social care, social infrastructure | Cities in EU member states are ageing. The increasing number of older urban residents have difficulties with basic activities of daily living due to physical and cognitive functional decline. Therefore, the demand for long-term care services in urban areas is rising. In the last 20 years, emerging technologies such as wireless communication, Internet of Things (IoT), sensors, ambient intelligence and cloud computing have opened up the possibilities of developing cyber-physical systems with various applications supporting older adults to remain physically and mentally active and live autonomously while being engaged in their communities. This paper shows that social infrastructure is an under-researched area of a smart city compared with digital infrastructure, transport infrastructure and utilities. This paper aims to review the digital transformation of social infrastructure for older adults in a smart city based on ambient assisted living technologies and propose a future research agenda. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 2 | 2020 | David Bogataj, Francisco Campuzano Bolarin, Marta Kavšek, Valerija Rogelj | IFAC PapersOnLine 53-2 (2020) 16914–16919 | Smart Silver Villages as part of Social Infrastructure for Older Adults in Rural Areas | ambient assisted technologies, smart village, independent living, assisted living, housing with care, health care, long-term care, population, ageing | Rural areas in the European Union are ageing faster than urban areas, in many cases due to outmigration of young cohorts. Social innovations based on the digital transformation of health care and social care delivery systems can support older adults to live autonomously and independently in their own communities and postpone or even prevent their having to enter a nursing home. Extension of these innovations in service provision to rural areas is the subject of this paper. Development of Smart Eko Social Villages presents opportunities for the development of new, digitally supported health and social infrastructure in rural areas. The innovations will enable a more efficient combination of the existing societal resources in the communities for the provision of health care and social needs to the ageing members of the society. They are dependent on the help of others due to illness or functional decline. On the supply side, new scientific (optimisation of the supply networks), organisational (self-managed communities) and technological innovations, like robotics, domotics, cyber physic systems (CPS) based on the Internet of Things and |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | cloud computing, offer new utilities and create new businesses for the supply of goods and services to older people, and also provide new job opportunities for the younger residents. This paper aims to consider the development of Smart Silver Villages as part of social infrastructure in rural areas, supporting the autonomy and independence of the rural population in their old age. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 3 | 2019 | Valerija Rogelj ,David Bogataj | IFAC PapersOnLine 52-13 (2019) 2680–2685 | Social infrastructure of Silver Economy: Literature review and Research agenda | LTC services, housing stock, risk management, population ageing, multiple decrement model | The term Silver Economy encompasses a vast range of concepts and areas of interest related to both the challenges and opportunities that the ageing population represents. Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services and support networks. Housing and utilities with the added value of 850 billion EUR per year represent the highest share of European Silver economy. Investments in housing and age-friendly built environment should be made with the criterion to accommodate declining functional capacities of ageing residents. Their functional capacities are decreasing and require the development of specialised housing stock for independent living in a community. The structure of housing stock and the development of supply networks and services for older adults, including nursing and socialcare, do not follow the dynamics of population ageing. Based on the literature review we present the dynamics of publications for the most frequently discussed types of dwellings in connection with 'older adults' in the journalsindexed by Web of Science (WoS). |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 4 | 2021 | Simon Colnar, Vlado Dimovski, David Bogataj | IFAC PapersOnLine 54-13 (2021) 744–749 | Review of Telecare in Smart Age-Friendly Cities | Smart cities, ambient assisted technologies, smart, independent living, assistedliving, housing with care, health care, long-term care, population ageing | The population in the European Union is ageing fast. In such a scenario, social innovations based on ambientassisted living technologies that enable a digital transformation of health care and social care delivery systems can empower older adults to live autonomously in their own neighbourhoods and postpone or even prevent migration to a nursing home. Extension of these innovations in service provision to smart cities is the subject of this paper. The development of smart cities presents opportunities for the development of new, digitally supported health and social infrastructure inurban and rural areas. These innovations will enable a more efficient combination of existing societal resources in neighbourhoods for the provision of health care and social needs to the ageing residents who are dependent on others due to illness or functional decline. On the supply side, new scientific and technological innovations offer new utilities and create new businesses for the supply of goods and services to older people, and provide new job opportunities for younger workers entering the job market. This paper aims to consider the digital transformation of social infrastructure as a part of the development of smart cities to support the autonomy of the elderly population. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 5 | 2015 | Greeshma P., Dr. Manoj Kumar K | Procedia Technology 24 (2016) 1827 – 1834 | Disaster Resilience in Vulnerable cities through Neighbourhood Development: A case ofChenna | Disaster, Resilience,Neighbourhood | This paper follows the discipline of Urban Design to elaborate the concepts of disaster resilience[1] at the neighbourhood level for the collective development of Chennai city. The increased inflow and use of resources attributed to the growing urban population creates a pressure on the various natural systems, increasing their vulnerability to multiple attacks from natural and man- made forces. Hence the future adaptability of cities is important for its growth in the aftermath of a disaster strike. The intent of this research is thus to develop a framework of strategies for an emergency response programme and to develop a design scheme to make cities resilient, through neighbourhood development. A sample precinct of Chepauk was taken up for the design demonstration after a detailed analysis of the same, addressing various physical factors such as land use, open spaces, connectivity networks, physical and social infrastructure, built density, ecology and emergency response mechanism. |
| 6 | 2016 | S.G. Sheina, A.A. Khamavova | Procedia Engineering 150 (2016) 1960 – 1965 | Technique for the Russian Federation Regional Territories Assessment Used to Create Industrial ParksNetwork | land-use planning; industrial park; city planning; sustainable development of territories; complexassessment of the territory | The following aspects are greatly important to correctly substantiate the territorial and spatial placement of industrial parks: existence and/or assessment of social infrastructure conditions and facilities (availability of housing, social and cultural facilities), engineering and transport infrastructures as well as environmental state. These important aspects require a systematic approach to the Russian Federation industrial zones placement and management. Outlining, selection and management of these zones are to be operationally analyzed, investment processes are to be generalized and recorded, the industrial parks rational placement is to be planned. |

[1] Disaster resilience is the ability of individuals, communities, organisations and states to adapt to and recover from hazards, shocks or stresses without compromising long-term prospects for development.
https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 7 | 2015 | Bernd Muschard,Günther Seliger | Procedia CIRP32 ( 2015 ) 70 – 75 | Realization of a Learning Environment to Promote Sustainable Value Creation in Areas with Insufficient Infrastructure | Mini-factory, Learnstrument, Sustainability, Closed loop material cycles, 3D printing, Self-sufficient manufacturingsystem | To increase the rationally demanded sustainability with its ecologic, environmental and social dimensions, innovative technology shall be exploited. For example waste can be used by means of closed loop material cycles for the production of new products. The understanding of such material cycles can help to deal responsibly with resources. Considering the limited awareness of more than seven billion humans on globe about the sustainability challenge, the teaching and learning productivity has to be boosted to hitherto not achieved levels. Complex interdependencies have to be scaled down to daily life experiences, so that people of differentskill levels or even laypersons can draw a practical benefitand become capable of self-sustainable value creation.How locally available plastic waste can be used for the production of new products in areas with insufficient technical and social infrastructure is explained in detail on the example of the mobile learning environment CubeFactory. This mini-factory was designed to support knowledge transfer for sustainable manufacturing competencies, independently from the need of any infrastructure. In this context, the term “infrastructure” contains all technical as well as social necessities needed for production. These may be the access to a durable energy and material supplies, as well as the access to machine tools or knowledge. Sustainability utilizes all elements to its advantage to serve as a beneficial tool for the society, the local economy and the environment. The CubeFactory represents an example of how to produce on local level what is immediately needed. It integrates a 3D printer as a manufacturing tool, a recycler for the filamentproduction, a solar-powered energy supply and the knowledge for the application of this resource- |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | savingtechnology. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 8 | 2021 | Judita Peterlin, Vlado Dimovski, Marija Bogataj | IFAC-PapersOnLine Volume 54, Issue 13, 2021, Pages 762-767 | Engineering Technology-Based Social Innovation sAccommodating Functional Decline of Older Adults | cyber-physical production, social innovation, human-robot cooperation, life-cyle management, production system | Social innovation is a complex area of research that has received a great deal of attention, especially recently. The development of digital technologies such as cyber- physical systems, big data, machine learning, blockchain, artificial intelligence and Internet-of-Things presents new opportunities for technology-based social innovations. Our paper places social innovation in the context ofengineering -and proposes the integration of social innovation methodology in the development of products or services for older people. Governments need to help social enterprises in the field of engineering by laying the foundations for 'what works' policymaking and the development of evidence-based initiatives. The purpose of this paper is to review the development of social innovations supporting multiple intelligences of older people and to provide examples of good practice in order to develop a model and propose a future research agenda. Cybersecurity and the ethical dimension within technically based social innovation are highlighted. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 9 | 2013 | L. Braha | 15th Workshopon International Stability, Technology, and Culture The International Federation of Automatic Control June 6-8, 2013. Prishtina ,Kosovo | International Position ofTrade of Kosovo | Globalization, internation altrade, comparative advantage | We are moving away from a world in which national economies were relatively self-contained entities, isolated from each other by barriers to cross-border trade and investment; by distance, time zones, and language; and bynational differences in government regulation, culture, and business systems. And we are moving toward a worldin which barriers to cross-border trade and investment aredeclining; perceived distance is shrinking due to advances in transportation and telecommunications technology; material culture is starting to look similar the world over; and national economies are merging into an interdependent, integrated global economic system. The purpose of this paper is to answer questions: why some countries develop much faster than other economies in the world? Why do some countries invest more than others in physical and human capital? And why are some countriesso much more productive than others? Analyze the case of Kosovo using Ricardo's theory of comparative advantage and Hecksher- Ohlin model of factor endowments. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 10 | 2016 | Tran Van Khaia | Procedia Engineering 142 ( 2016 ) 342 – 348 | Formation of the Feasibility of Housing Projects in Vietnam Incorporating the Physical and Social Factors | Feasibility; real-estate ; social segregation; urban transportation | Unlike the crisis in the U.S which mainly started from the secondary investors and financial system, the Vietnam's housing bubble is caused by the primary realty investors. When businesses in Vietnam made lower profits, this led a rush to investments in the real estate market even from those primary investors who are newly established, lack of professionalism of housing development and knowledge of urban economics. Many of their projects were lack of feasibility as products could not be sold or developed, leaving the market frozen with huge numbers of empty plots, houses, and apartments. The review on Urban Sociology theories from the Chicago school to the recent researches on Urban Residential Location combining with deep analysis on the situation of Vietnam and the U.S had clarified the causes of housing crisis in Vietnam. Many housing projects within the country are prepared without incorporating certain physical and social factors, leading to the lack in feasibility and therefore largely seen as the origination of housing crisis. The proposed solution of this research was to incorporate physical and social factors in the projects, represented by the correct selection of the appropriate Housing Status and Dwelling Quality for each social group. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 11 | 2016 | Lan Huong Le, Anh Dung Ta, Hoang Quyen Dang | Procedia Engineering 142 ( 2016 ) 116 – 123 | Building up a System of Indicators to Measure Social Housing Quality in Vietnam | Assessing system of housing quality; housing qualityindicators | Development of social housing is an important and urgent issue that needs the attention of the Government as well as the entire construction industry to meet the welfare needs of regular citizens and to achieve social stability. There always appear two sides of a coin in the development of housing projects: "quality" and "price". Both of the two elements are important, however cost reduction seems to be of utmost importance to social housing projects rather than quality factor. In fact, the roleof construction quality is sometimes considered redundant, which leads to long-term effects for users, and this addresses the reason why people gradually lose faith in social housing provisions. Therefore, it is necessary toset up a system of a workable set of indicators to measuresocial housing quality. The assessing system is not only beneficial for investors, consultants to apprehend their housing products, but also for regular citizens to make a better choice in buying themselves an apartment, and thisis the aim of our research. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 12 | 2020 | Barbara Grah, Simon Colnar, Vlad o Dimovski, Sandra Penger | IFAC PapersOnLine 53-2 (2020) 10591–10596 | Age management in the context of Industry 4.0 and beyond | Industry 4.0, smart workingenvironment, age management | Keeping workers active and productive for a longer time is one of the key societal challenges of developed economies. Older workers have accumulated experiences and knowledge during their working lifetime, but due to declining functional capacities, many of them will not beable to work until the increased retirement age. Contemporary technological solutions supporting human- machine interactions such as smart working environment, production cells, exoskeletons, and others, in the contextof Industry 4.0 technologies enable workers to stay productive longer. In the present study, we use a multiple decrement model. In the numerical example, we apply the model to the European industrial workforce. We modeledtransitions among different productivity states of industrial workers, ranging from a potential employee to workforce exit, through retirement or death. The presented study shows the importance of appropriate age management practice applications that have the potential to substantially prolong the work-life of industrial workers in the European Union. The demographic model presented, allows measuring the influence that technological solutions in the context of Industry 4.0 haveon the workers' entrance and exits. The model shows how leveraging the accumulated workers' knowledge and experience of older workers and automation of physically demanding tasks can not only improve the productivity of industrial systems but also decrease the costs of ill-healthrelated expenditures. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 13 | 2016 | Tatiana Ya. Vavilova, Natalia D. Potienko, Irina V. Zhdanova | Procedia Engineering 153 ( 2016 ) 938 – 943 | On Modernization of Capital Construction Projects in the Context of Sustainable Development of SocialSphere | architecture, sustainable development, social problems, residential buildings, publicbuildings | The paper presents the results of the research on identifying architectural methods for improving social facilities in the Russian Federation. There have been defined basic typological groups of institutions, which consumer qualities are improved according to the criteriaof the sustainable development concept. Based on the analysis of the situation in the country, the authors focus on the key areas of capital construction that is infrastructure spatial optimization, ecologization and humanization of the living environment. Using the example of the Samara region the most vital problem – the extension of the project life cycle and improvement of their functional and spatial characteristics has been considered. Close attention is paid to mass-scale residential buildings and orphanage institutions. It has been concluded that in the new design and construction, as well as modernization of projects, there is need for mandatory instead of voluntary regulations of their environmental characteristics. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 14 | 2015 | Marek Szczuka | Procedia Manufacturing3 (2015) 4800 – 4807 | Social Dimension of Sustainability in CSR Standards | Sustainable developmentCorporate socialresponsibilityCSR bestpracticesCSR standards | Sustainable development is a part of strategy of modern company. The idea of this conception establishes business activity due to social, environment and economic benefits. Sustainable rules point ways of exploring natural resources satisfying human needs and enabling business activity and its uninterrupted development. In purpose of realization sustainable development assumptions conception called corporate social responsibility was elaborated. With its help companies can describe best practices targeted on management operations on these human units, which take part in realized processes and those, on who these processes have influence. CSR idea concerns company community, as also external stakeholders. In terms of enterprise conception affects creating relations with employees, level of confidence building and implementing voluntary actions such as allowing personal growth and proving timely and proportional to qualifications remuneration. To a group of the most important regulations belong Social Accountability 8000, The Account Ability Stakeholder Engagement Standard and ISO 26000. Paper purpose is todistinguish these best practices being used by activity businesses for internal and external stakeholders. Relations of responsible management in the context of their level of reference to standards taken into account. Analysed practices concern aspects such as workplace, employee practices, employee rights, management and staff governance and rely to period from 2003 to 2012 year. Mentioned features have source in industries of logistics, fuel, energetic, sales and services. |

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 15 | 2015 | Tannaz Monfaredzadeh,Robert Krueger | Procedia Engineering 118 ( 2015 ) 1112 – 1118 | Investigating Social Factors of Sustainability in a Smart City | Smart City, Social Sustainability, Smart Initiative, Urban Development | Sustainability is an established goal of future urban developments. More recently, the smart city concept has been employed to address issues associated with negative environmental externalities. Topics associated to people and communities, in the content of smart cities, have beenneglected on the expense of a deeper understanding of the technological aspect of smart. This paper focuses on filling this gap by exploring its significance of sustainability and describing the interactions of these twoconcepts. This paper thus provides a particular conceptualfocus on the potential of smart city strategies for improving the social sustainability of cities. |

Z metodo sistematičnega pregleda literature lahko ugotovimo, da je gleda na razpoložljivo literaturo v znanstveni bazi ScienceDirect tematika socialne infrastrukture obravnavana v več pomenih. Izbrani članki tujih avtorjev tematiko obravnavajo na različnih področjih. Slovenski avtorji večinoma obravnavajo področje starostnikov in s tem povezanega medgeneracijskega sobivanja. Velik poudarek je tudi na avtonomnem življenju starostnikov ob podpori novih tehnološki rešitev sistema CPS. [2]

Podrobne raziskave v Sloveniji se dotikajo tudi podaljšanje delovne aktivnosti ljudi v povezavi s tehnološkim napredkom. Iz navedenega lahko sklepamo, da je v Sloveniji na področju medgeneracijskega bivanja že precej raziskanega. Predvidevamo, da je bilo glede na število raziskav to področje v preteklosti manj urejeno in najbrž tudi v sedanjosti ponuja še veliko možnosti izboljšav. Glede na različno interpretacijo pojma socialna infrastruktura v tuji literaturi, bomo s kvalitativno raziskavo najprej preučili razumevanje besedne zveze socialna infrastruktura.

Prevladujoče področja, ki ga obravnavajo slovenski avtorji, pa bomo v nadaljevanju preučili s kvalitativno raziskavo, saj želimo raziskati zadovoljstvo ljudi na področju socialne infrastrukture in njihovo mnenje glede nadaljnjega razvoja.

Z nadaljnje delo smo si postavili 2 hipotezi:

1. hipoteza: Pojem socialna infrastruktura si ljudje predstavljajo na različne načine.
2. hipoteza: Tehnološki razvoj bo imel pozitiven vpliv na medgeneracijsko sodelovanje, kar bo mnenje vseh udeležencev v intervjuju.

### 6.1.2 Kvalitativno raziskovanje

Kvalitativne raziskave spadajo med empirične raziskave. Mednje uvršamo intervjuje. Na podlagi sklepnih ugotovitev po raziskavi z metodo sistematični pregled literature tvorimo 3 ključna vprašanja, ki jih bomo zastavili udeležencem.

1. Kako si razlagate pojem socialna infrastruktura?
2. Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskega sobivanja mladih in starostnikov? Zakaj?
3. V kolikšni meri bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? In kako bodo te rešitve vplivale na podaljšanje delovne aktivnosti ljudi?

Intervjuji so bili izvedeni v živo in preko telefona.

[2] Cyber-Physical Systems (CPS) are integrations of computation, networking, and physical processes. Embedded computers and networks monitor and control the physical processes, with feedback loops where physical processes affect computations and vice versa.
Vir: https://ptolemy.berkeley.edu/projects/cps/

## Demografski del raziskave

| Udeleženec: | Spol M/Ž | Starost (mlajša generacija do 30 let, srednja od 30-60 let, starejša nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | V1 | V2 | V3 |
|---|---|---|---|---|---|---|---|---|
| **1** | M | od 30- 60 let | F | center mesta | | socialna stanovanja, dom za prebežnike, družine v stiskah | tega v Sloveniji ni veliko oz se o tem ne govori | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo |
| **2** | Ž | nad 60 let | F | ruralno okolje | | način organiziranosti ustanov in dostop do njih, domovi za starejše, društva za pomoč v stiski (npr. Karitas, Rdeči križ) | zelo; v občini imajo tak center, aktivna udeleženka, igre, srečanja, druženja… | že zdaj uporaba zoom in meila pri medgeneracijskem povezovanju; aktivacija tehnološki rešitev bo pripomogla k daljši mentalni sposobnosti |
| **3** | M | nad 60 let | F | ruralno okolje | | domovi za starejše, bolnice, šole | zadovoljen; sicer nima stika s temi ustanovami; edini stik v vaški gostilni | pomagalo pri povezovanju; starejši bodo želeli uporabljati računalnik in jih bodo mladi učil; vpliv na daljšo delovno aktivnost bo; podaljšanje dela do smrti ni pridobitev socialne države |
| **4** | Ž | od 30 - 60 let | F | okolica mesta | | institucije v zvezi z odnosi in družbo na splošno, npr. šola, služba… | ni zadovoljna; centri so, a jih je premalo; mladi starejšim dajejo znanje, starejši pa mladim svojo modrost. | Tehnologija bo zelo vplivala na zmanjševanje medgeneracijskih nasprotij. Podalševanje dela bo mogoče tudi v teh medgeneracijskih centrih. |
| **5** | Ž | do 30 let | OŠ | okolica mesta | | družbeno okolje, ki ga sestavljajo različni ljudje oz različne družbe; npr. razred | Povezovanje v domu upokojencev starostnikov z vrtcem. Odvisno do staršev, kako poskrbijo, da vnuki preživljajo več časa s starimi starši. | Poslabšanje. Družili bi se manj, če bi razvili še več naprav za komunikacijo na daljavo. Tehnološke naprave vzamejo čas in bi tako mlajši imeli manj časa za stik s starostniki. Podaljševanje dela: DA. |
| **6** | M | do 30 let | OŠ | okolica mesta | | za družbo, nekaj socialnega | starostniki v domovih za ostarele, društva. Mladi v različnih službah pri teh aktivnostih medgeneracijskega sodelovanja. | Da. Mladi ne razumejo mnenja starih. Vsak ima svoje mnenje in preko tehnologije se bolje razumejo. Podaljševanje dela: DA. |
| **7** | M | od 30 - 60 let | SŠ | okolica mesta | | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. |
| demografski del | | | | | | Raziskava | | |

**VPRAŠANJE 1:** Kako si razlagate pojem socialna infrastruktura?
**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | V1 | | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| **1** | | M | | socialna stanovanja, dom za prebežnike, družine v stiskah | | različni socialne ustanove (npr. domovi upokojence) | | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura v ločenih skupinah moških in žensk. |
| **2** | **Ž** | | | način organiziranosti ustanov in dostop do njih, domovi za starejše, društva za pomoč v stiski (npr. Karitas, Rdeči križ) | | | | |
| **3** | | M | | domovi za starejše, bolnice, šole | | | | |
| **4** | **Ž** | | | institucije v zvezi z odnosi in družbo na splošno, npr. šola, služba… | | | | |
| **5** | **Ž** | | | družbeno okolje, ki ga sestavljajo različni ljudje oz različne družbe; npr. razred | | različni socialne ustanove (npr. šolu) | | |
| **6** | | M | | za družbo, nekaj socialnega | | | | |
| **7** | | M | | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | | | | |
| demografski del | | | | Združevanje odgovorov | | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 1:** Kako si razlagate pojem socialna infrastruktura?

**Primer: STAROST**

| Udeleženec: | do 30 let | 30 - 60 let | nad 60 let | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| **1** | | od 30- 60 let | | | socialna stanovanja, dom za prebežnike, družine v stiskah | socialne ustanove v katerih preživlja veliko časa srednja generacija | | Različna interpretacija pojma socialna infrastruktura izvira predvsem iz notranje naravnanosti in preživljanje delovnega in prostega časa. Za mlajše je to šola, srednja generacija omeni različne službe in ustanove, starejši pa dom za upokojence. |
| **2** | | | nad 60 let | | način organiziranosti ustanov in dostop do njih, domovi za starejše, društva za pomoč v stiski (npr. Karitas, Rdeči križ) | | | |
| **3** | | | nad 60 let | | domovi za starejše, bolnice, šole | | | |
| **4** | | od 30 - 60 let | | | institucije v zvezi z odnosi in družbo na splošno, npr. šola, služba… | domovi za starejše | | |
| **5** | do 30 let | | | | družbeno okolje, ki ga sestavljajo različni ljudje oz različne družbe; npr. razred | | | |
| **6** | do 30 let | | | | za družbo, nekaj socialnega | razred, šola | | |
| **7** | | od 30 - 60 let | | | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 1:** Kako si razlagate pojem socialna infrastruktura?

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | V1 | V1 | V1 |
|---|---|---|---|---|---|---|
| **1** | | | F | socialna stanovanja, dom za prebežnike, družine v stiskah | šole | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura glede na izobrazbo. |
| **2** | | | F | način organiziranosti ustanov in dostop do njih, domovi za starejše, društva za pomoč v stiski (npr. Karitas, Rdeči križ) | | |
| **3** | | | F | domovi za starejše, bolnice, šole | | |
| **4** | | | F | institucije v zvezi z odnosi in družbo na splošno, npr. šola, služba… | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | |
| **5** | OŠ | | | družbeno okolje, ki ga sestavljajo različni ljudje oz različne družbe; npr. razred | | |
| **6** | OŠ | | | za družbo, nekaj socialnega | ustanove v zvezi z odnosi in družbo na splošno | |
| **7** | | SŠ | | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 1:** Kako si razlagate pojem socialna infrastruktura?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | V1 | V1 | V1 |
|---|---|---|---|---|---|---|
| **1** | center mesta | | | socialna stanovanja, dom za prebežnike, družine v stiskah | socialna stanovanja, dom za prebežnike, družine v stiskah | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura glede na kraj bivanja z izjemo ruralnega okolja, ki omenja v prvi vrsti dom za upokojence. |
| **2** | | | ruralno okolje | način organiziranosti ustanov in dostop do njih, domovi za starejše, društva za pomoč v stiski (npr. Karitas, Rdeči križ) | | |
| **3** | | | ruralno okolje | domovi za starejše, bolnice, šole | ustanove v zvezi z odnosi in družbo na splošno | |
| **4** | | okolica mesta | | institucije v zvezi z odnosi in družbo na splošno, npr. šola, služba… | | |
| **5** | | okolica mesta | | družbeno okolje, ki ga sestavljajo različni ljudje oz različne družbe; npr. razred | | |
| **6** | | okolica mesta | | za družbo, nekaj socialnega | domovi za starejše | |
| **7** | | okolica mesta | | domovi za upokojence, javni prostori, knjižnice, kultruni domovi, ustanove za socialno varnost (npr. Csd) | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 2:** Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskega sobivanja mladih in starostnikov? Zakaj?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | V2 | V2 | V2 |
|---|---|---|---|---|---|
| **1** | | M | tega v Sloveniji ni veliko oz se o tem ne govori | Zadovoljni. V zadnjem času je več takih projektov kot včasih. | V Sloveniji so z razvojem socialne infrastrukture veliko bolj zadovoljni moški. Ženske še vedno vidijo možnost izboljšav. |
| **2** | **Ž** | | zelo; v občini imajo tak center, aktivna udeleženka, igre, srečanja, druženja… | | |
| **3** | | M | zadovoljen; sicer nima stika s temi ustanovami; edini stik v vaški gostilni | | |
| **4** | **Ž** | | ni zadovoljna; centri so, a jih je premalo; mladi starejšim dajejo znanje, starejši pa mladim svojo modrost. | | |
| **5** | **Ž** | | Povezovanje v domu upokojencev starostnikov z vrtcem. Odvisno do staršev, kako poskrbijo, da vnuki preživljajo več časa s starimi starši. | Srednje zadovoljni. Vidijo možnosti izboljšav. | |
| **6** | | M | starostniki v domovih za ostarele, društva. Mladi v različnih službah pri teh aktivnostih medgeneracijskega sodelovanja. | | |
| **7** | | M | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | | |
| demografski del | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 2:** Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskega sobivanja mladih in starostnikov? Zakaj?

**Primer: STAROST**

| Udeleženec: | do 30 let | 30 - 60 let | nad 60 let | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| **1** | | od 30- 60 let | | | tega v Sloveniji ni veliko oz se o tem ne govori | Srednje zadovoljni. | | V Sloveniji so z razvojem socialne infrastrukture najbolj zadovoljni v skupinah nad 60 let in do 30 let. Srednja generacija ima mešana mnenja. |
| **2** | | | nad 60 let | | zelo; v občini imajo tak center, aktivna udeleženka, igre, srečanja, druženja… | | | |
| **3** | | | nad 60 let | | zadovoljen; sicer nima stika s temi ustanovami; edini stik v vaški gostilni | | | |
| **4** | | od 30 - 60 let | | | ni zadovoljna; centri so, a jih je premalo; mladi starejšim dajejo znanje, starejši pa mladim svojo modrost. | zelo zadovoljni, stiki z mlajšo generacijo v medgeneracijskih centrih ter vaški gostilni | | |
| **5** | do 30 let | | | | Povezovanje v domu upokojencev starostnikov z vrtcem. Odvisno do staršev, kako poskrbijo, da vnuki preživljajo več časa s starimi starši. | | | |
| **6** | do 30 let | | | | starostniki v domovih za ostarele, društva. Mladi v različnih službah pri teh aktivnostih medgeneracijskega sodelovanja. | Zadovoljni. | | |
| **7** | | od 30 - 60 let | | | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskega sobivanja mladih in starostnikov? Zakaj?

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | V2 | V2 | V2 |
|---|---|---|---|---|---|---|
| **1** | | | F | tega v Sloveniji ni veliko oz se o tem ne govori | Da. | V Sloveniji sta z razvojem socialne infrastrukture najbolj zadovoljni skupini z nižjo izobrazbo (OŠ in SS). V skupini z višjo izobrazbo so mnenja mešana. |
| **2** | | | F | zelo; v občini imajo tak center, aktivna udeleženka, igre, srečanja, druženja… | | |
| **3** | | | F | zadovoljen; sicer nima stika s temi ustanovami; edini stik v vaški gostilni | | |
| **4** | | | F | ni zadovoljna; centri so, a jih je premalo; mladi starejšim dajejo znanje, starejši pa mladim svojo modrost. | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | |
| **5** | OŠ | | | Povezovanje v domu upokojencev starostnikov z vrtcem. Odvisno do staršev, kako poskrbijo, da vnuki preživljajo več časa s starimi starši. | | |
| **6** | OŠ | | | starostniki v domovih za ostarele, društva. Mladi v različnih službah pri teh aktivnostih medgeneracijskega sodelovanja. | Srednje zadovoljni. Mešana mnenja. | |
| **7** | | SŠ | | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 2:** Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskega sobivanja mladih in starostnikov? Zakaj?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | V2 | V2 | V2 |
|---|---|---|---|---|---|---|
| **1** | center mesta | | | tega v Sloveniji ni veliko oz se o tem ne govori | tega v Sloveniji ni veliko oz se o tem ne govori | V Sloveniji so z razvojem socialne infrastrukture najbolj zadovoljni v skupini, ki živi v ruralnem okolju. Ostali dve imata mešana mnenja. |
| **2** | | | ruralno okolje | zelo; v občini imajo tak center, aktivna udeleženka, igre, srečanja, druženja… | | |
| **3** | | | ruralno okolje | zadovoljen; sicer nima stika s temi ustanovami; edini stik v vaški gostilni | mešana mnenja. | |
| **4** | | okolica mesta | | ni zadovoljna; centri so, a jih je premalo; mladi starejšim dajejo znanje, starejši pa mladim svojo modrost. | | |
| **5** | | okolica mesta | | Povezovanje v domu upokojencev starostnikov z vrtcem. Odvisno do staršev, kako poskrbijo, da vnuki preživljajo več časa s starimi starši. | | |
| **6** | | okolica mesta | | starostniki v domovih za ostarele, društva. Mladi v različnih službah pri teh aktivnostih medgeneracijskega sodelovanja. | zelo zadovoljni, stiki z mlajšo generacijo v medgeneracijskih centrih ter vaški gostilni | |
| **7** | | okolica mesta | | Da. Projetki se razvijajo v to smer. V zadnjem času je več takih projektov kot včasih. | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 3:** V kolikšni meri bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? In kako bodo te rešitve vplivale na podaljšanje delovne aktivnosti ljudi?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | V3 | V3 | V3 |
|---|---|---|---|---|---|
| **1** | | M | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo | Večinoma vidijo pozitiven vpliv, mešana mnenja. | Na vpliv novih tehnoloških rešitev večinoma gledata pozitivno obe skupini in imata tudi približno enak % drugačnega manjšinskega mnenja. |
| **2** | Ž | | že zdaj uporaba zoom in meila pri medgeneracijskem povezovanju; aktivacija tehnološki rešitev bo pripomogla k daljši mentalni sposobnosti | | |
| **3** | | M | pomagalo pri povezovanju; starejši bodo želeli uporabljati računalnik in jih bodo mladi učil; vpliv na daljšo delovno aktivnost bo; podaljšanje dela do smrti ni pridobitev socialne države | | |
| **4** | Ž | | Tehnologija bo zelo vplivala na zmanjševanje medgeneracijskih nasprotij. Podalševanje dela bo mogoče tudi v teh medgeneracijskih centrih. | | |
| **5** | Ž | | Poslabšanje. Družili bi se manj, če bi razvili še več naprav za komunikacijo na daljavo. Tehnološke naprave vzamejo čas in bi tako mlajši imeli manj časa za stik s starostniki. Podaljševanje dela: DA. | Večinoma vidijo pozitiven vpliv, mešana mnenja. | |
| **6** | | M | Da. Mladi ne razumejo mnenja starih. Vsak ima svoje mnenje in preko tehnologije se bolje razumejo. Podaljševanje dela: DA. | | |
| **7** | | M | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. | | |
| demografski del | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 3:** V kolikšni meri bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? In kako bodo te rešitve vplivale na podaljšanje delovne aktivnosti ljudi?

**Primer: STAROST**

| Udeleženec: | do 30 let | 30 - 60 let | nad 60 let | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|
| **1** | | od 30- 60 let | | | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo | Mešani odgovori. | | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupini nad 60 let. V ostalij dveh skupinah so mešani odgovori. |
| **2** | | | nad 60 let | | že zdaj uporaba zoom in meila pri medgeneracijskem povezovanju; aktivacija tehnološki rešitev bo pripomogla k daljši mentalni sposobnosti | | | |
| **3** | | | nad 60 let | | pomagalo pri povezovanju; starejši bodo želeli uporabljati računalnik in jih bodo mladi učil; vpliv na daljšo delovno aktivnost bo; podaljšanje dela do smrti ni pridobitev socialne države | | | |
| **4** | | od 30 - 60 let | | | Tehnologija bo zelo vplivala na zmanjševanje medgeneracijskih nasprotij. Podalševanje dela bo mogoče tudi v teh medgeneracijskih centrih. | tehnološki razvoj bo pomagal pri medgeneracijskem povezovanju in pripomogel k daljši mentalni sposobnosti | | |
| **5** | do 30 let | | | | Poslabšanje. Družili bi se manj, če bi razvili še več naprav za komunikacijo na daljavo. Tehnološke naprave vzamejo čas in bi tako mlajši imeli manj časa za stik s starostniki. Podaljševanje dela: DA. | | | |
| **6** | do 30 let | | | | Da. Mladi ne razumejo mnenja starih. Vsak ima svoje mnenje in preko tehnologije se bolje razumejo. Podaljševanje dela: DA. | Mešani odgovori. | | |
| **7** | | od 30 - 60 let | | | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** V kolikšni meri bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? In kako bodo te rešitve vplivale na podaljšanje delovne aktivnosti ljudi?

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | V3 | V3 | V3 |
|---|---|---|---|---|---|---|
| **1** | | | F | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo | Mešani odgovori. | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupini s fakulteto. Osebe s srednjo šolo pozitovnega vpliva ne vidijo. V skupini OŠ pa so odgovori mešani. |
| **2** | | | F | že zdaj uporaba zoom in meila pri medgeneracijskem povezovanju; aktivacija tehnološki rešitev bo pripomogla k daljši mentalni sposobnosti | | |
| **3** | | | F | pomagalo pri povezovanju; starejši bodo želeli uporabljati računalnik in jih bodo mladi učil; vpliv na daljšo delovno aktivnost bo; podaljšanje dela do smrti ni pridobitev socialne države | | |
| **4** | | | F | Tehnologija bo zelo vplivala na zmanjševanje medgeneracijskih nasprotij. Podalševanje dela bo mogoče tudi v teh medgeneracijskih centrih. | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. | |
| **5** | OŠ | | | Poslabšanje. Družili bi se manj, če bi razvili še več naprav za komunikacijo na daljavo. Tehnološke naprave vzamejo čas in bi tako mlajši imeli manj časa za stik s starostniki. Podaljševanje dela: DA. | | |
| **6** | OŠ | | | Da. Mladi ne razumejo mnenja starih. Vsak ima svoje mnenje in preko tehnologije se bolje razumejo. Podaljševanje dela: DA. | pozitiven vpliv; nujno potrebne nove tehnološke rešitve tako za medgeneracijsko bivanje kot tudi za podaljševanje delovne dobe. | |
| **7** | | SŠ | | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

**VPRAŠANJE 3:** V kolikšni meri bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? In kako bodo te rešitve vplivale na podaljšanje delovne aktivnosti ljudi?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | V3 | V3 | V3 |
|---|---|---|---|---|---|---|
| **1** | center mesta | | | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo | tehnološki razvoj potreben, saj se prebivalstno stara in pomoč bo najlažje urediti s tehnologijo | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupinah iz centra mesta in ruralnega okolja. V skupini iz okolice mesta so odgovori mešani. |
| **2** | | | ruralno okolje | že zdaj uporaba zoom in meila pri medgeneracijskem povezovanju; aktivacija tehnološki rešitev bo pripomogla k daljši mentalni sposobnosti | | |
| **3** | | | ruralno okolje | pomagalo pri povezovanju; starejši bodo želeli uporabljati računalnik in jih bodo mladi učil; vpliv na daljšo delovno aktivnost bo; podaljšanje dela do smrti ni pridobitev socialne države | Mešani odgovori. | |
| **4** | | okolica mesta | | Tehnologija bo zelo vplivala na zmanjševanje medgeneracijskih nasprotij. Podalševanje dela bo mogoče tudi v teh medgeneracijskih centrih. | | |
| **5** | | okolica mesta | | Poslabšanje. Družili bi se manj, če bi razvili še več naprav za komunikacijo na daljavo. Tehnološke naprave vzamejo čas in bi tako mlajši imeli manj časa za stik s starostniki. Podaljševanje dela: DA. | | |
| **6** | | okolica mesta | | Da. Mladi ne razumejo mnenja starih. Vsak ima svoje mnenje in preko tehnologije se bolje razumejo. Podaljševanje dela: DA. | tehnološki razvoj bo pomagal pri medgeneracijskem povezovanju in pripomogel k daljši mentalni sposobnosti | |
| **7** | | okolica mesta | | Ne tako zelo. Podaljševanje dela: tudi ne tako zelo. | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | Sklep in obrazložitev |

Prikaz rezultatov:

| Vprašanja | Spol M/Ž | Starost (mlajša generacija do 30 let, srednja od 30-60 let, starejša nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | Sklep |
|---|---|---|---|---|---|---|
| **V1** | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura v ločenih skupinah moških in žensk. | Različna interpretacija pojma socialna infrastruktura izvira predvsem iz notranje naravnanosti in preživljanje delovnega in prostega časa. Za mlajše je to šola, srednja generacija omeni različne službe in ustanove, starejši pa dom za upokojence. | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura glede na izobrazbo. | Različne socialne ustanove. Ni velikih odstopanj o predstavah glede pojma socialna infrastrutkura glede na kraj bivanja z izjemo ruralnega okolja, ki omenja v prvi vrsti dom za upokojence. | | Kot je bilo predvideno, si pojem socialna infrastruktura ljudje predstavljajo na različne načine. To je odvisno predvsemod notranji dejavnikov oseb, njihova osebne naravnanosti in preživljanje časa. Pri interpretaciji pojma socialna infrastruktura so podajali primere ustanov iz svojega življenjskega obdobja. |
| **V2** | V Sloveniji so z razvojem socialne infrastrukture veliko bolj zadovoljni moški. Ženske še vedno vidijo možnost izboljšav. | V Sloveniji so z razvojem socialne infrastrukture najbolj zadovoljni v skupinah nad 60 let in do 30 let. Srednja generacija ima mešana mnenja. | V Sloveniji sta z razvojem socialne infrastrukture najbolj zadovoljni skupini z nižjo izobrazbo (OŠ in SS). V skupini z višjo izobrazbo so mnenja mešana. | V Sloveniji so z razvojem socialne infrastrukture najbolj zadovoljni v skupini, ki živi v ruralnem okolju. Ostali dve imata mešana mnenja. | | V Sloveniji so z razvojem socialne infrastrukture na področju medgeneracijskega povezovanja najbolj zadovoljni ljudje, ki te ustanove aktivno uporabljajo. Srednja generacija vidi še možnost izboljšav . |
| **V3** | Na vpliv novih tehnoloških rešitev večinoma gledata pozitivno obe skupini in imata tudi približno enak % drugačnega manjšinskega mnenja. | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupini nad 60 let. V ostalij dveh skupinah so mešani odgovori. | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupini s fakulteto. Osebe s srednjo šolo pozitovnega vpliva ne vidijo. V skupini OŠ pa so odgovori mešani. | Največjo prednost vpliva novih tehnoloških rešitev vidijo v skupinah iz centra mesta in ruralnega okolja. V skupini iz okolice mesta so odgovori mešani. | | Večina ljudi meni, da bodo tehnološke rešitve pozitivno vplivale na razvoj medgeneracijskega sobivanja. Posamezniki, ki imajo drugo mnenje o tem, sicer odpirajo nova vprašanja o tematiki in postavljajo nove možnosti nadaljnega raziskovanja. |
| demografski del | | | | | | Združevanje odgovorov |

Ob izvedbi intervjujev so do izraza prišli predvsem notranji dejavniki oseb, njihova osebna naravnanostin preživljanje časa. Pri interpretaciji pojma socialna infrastruktura so podajali primere ustanov iz svojega življenjskega obdobja. S tem smo potrdili 1. hipotezo, ki smo jo zastavili ob pregledu literature. Za mlajše do 30 let je bila taka ustanova razred, srednja generacija je odgovore iskala v službah, centrihter knjižnicah. Za njih so to ustanove, v katerih preživijo velik del dneva. Starejši nad 60 let pa so pričkovano najprej omenili domove za starejše občane. Na tehnološki razvoj najbolj optimistično zrejopredvsem starejši, srednja generacij in mlajši ob izvedbi intervjuja niso deli povsem istega mnenja s starejšimi. Ob analizi rezultatov tako nismo potrdili 2. hipoteze v skupini mlajših, saj le ti niso povsemprepričani, če bo imel tehnološki razvoj pozitiven vpliv na področju medgeneracijskega sodelovanja. Posamezniki, ki imajo negativno mnenje o doprinosu tehnoloških rešitev, sicer odpirajo nova vprašanja o tematiki in postavljajo nove možnosti nadaljnjega raziskovanja.

## 6.1.5 Kvantitativno raziskovanje

Kvantitativne raziskave spadajo med empirične raziskave. Mednje uvršamo ankete. Grum (2020) navaja, da glede sestave vprašalnika ločimo dva tipa ankete: odprti in zaprti tip vprašanj. Pri odprtem tipu vprašanj ponujenih možnosti odgovorov v pisni obliki repondentu ne podajamo. Ta tip ankete uporabimo, kadar v naprej ni mogoče predvideti vseh odgovorov. Pri zaprtem tipu pa respondent izbere med vnaprej ponujenimi odgovori. Najpogostejša tehnika je Likertova merska lestvica, ki jo je razvil 1932 ameriški psiholog Rensis Likert in omogoča merjenje posameznikovih stališč s pomočjo ordinalne merske lestvice – ocenjevanje trditev z ocenami od 1 do 5. Uporabljamo jo za ugotavljanje stopnje izraženosti proučevanih pojavov (Grum, 2020).

Na podlagi sklepnih ugotovitev raziskav z metodo sistematični pregled literature tvorimo 3 ključna vprašanja, ki jih bomo zastavili udeležencem ankete. Vprašanja so vsebinsko podobna vprašanjem, ki smo jih tvorili pri sestavljanju intervjuja. Pri sestavljanju vprašalnika za izvedbo ankete smo ključna vprašanja intervjuja preoblikovali na način, da je mogoče obkrožiti primerno stopnjo odgovora po Likertovi lestvici.

Ključna vprašanja v vprašalniku ankete so sledeča:
1.) Ali razumete pojem socialna infrastruktura?
2.) Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskegasobivanja mladih in starostnikov?
3.) Ali menite, da bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanjamladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)?

Anketni vprašalnik je bil posredovan udeležencem ankete, na katerega so odgovorili pisno.

**Anketni vprašalnik**

Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture inživljenjskega zadovoljstva

*1.) Vaš spol:*
*1 moški*
*2 ženski*
*2.) Vaša starost:*

| | |
|---|---|
| *1* | *do 30 let* |
| *2* | *od 30 - 60 let* |
| *3* | *nad 60 let* |

*3.) Vaša izobrazba:*

*1 osnovna šola*
*2 srednja šola*
*3 fakultet*

*a4.) Kraj bivanja:*
*1 center mesta*
*2 okolica mesta*
*3 ruralno okolje*

*5.) Ali razumete pojem socialna infrastruktura? Obkrožite primerno stopnjo.ne razumem 1 2 3 4 5 razumem*

*6.) Ali ste zadovoljni z razvojem socialne infrastrukture v Slovenij na področju medgeneracijskegasobivanja mladih in starostnikov? Obkrožite primerno stopnjo. nezadovoljen 1 2 3 4 5 zadovoljen*

*7.) Ali menite, da bodo na razvoj socialne infrastrukture na področju medgeneracijskega sobivanjamladih in starostnikov vplivale nove tehnoloških rešitve (npr. pametne hiše, roboti…)? ni vpliva 1 2 3 4 5 velik vpliv*

Rezultati ankete – tabelarični prikaz:

| Udeleženec: | Spol M/Ž | Starost (mlajša generacija do 30 let, srednja od 30-60 let, starejša nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | V1 | V2 | V3 |
|---|---|---|---|---|---|---|---|---|
| **1** | M | nad 60 let | F | ruralno okolje | | 5 | 3 | 3 |
| **2** | Ž | do 30 let | OŠ | center mesta | | 3 | 4 | 3 |
| **3** | M | od 30- 60 let | F | center mesta | | 4 | 3 | 3 |
| **4** | Ž | nad 60 let | F | ruralno okolje | | 5 | 5 | 5 |
| **5** | M | do 30 let | OŠ | center mesta | | 3 | 4 | 2 |
| **6** | M | od 30 - 60 let | SŠ | center mesta | | 3 | 3 | 2 |
| **7** | M | od 30 - 60 let | F | center mesta | | 5 | 3 | 4 |
| **8** | M | od 30 - 60 let | F | okolica mesta | | 5 | 3 | 3 |
| **9** | Ž | nad 60 let | OŠ | ruralno okolje | | 3 | 4 | 3 |
| **10** | Ž | od 30 - 60 let | F | center mesta | | 5 | 3 | 5 |
| **11** | M | od 30 - 60 let | F | okolica mesta | | 5 | 3 | 4 |
| **12** | Ž | od 30 - 60 let | F | okolica mesta | | 5 | 3 | 4 |
| demografski del | | | | | | Raziskava | | |

| | | | | |
|---|---|---|---|---|
| Povprečje | | **4,25** | **3,42** | **3,42** |

Ob izvedbi ankete smo ugotovili, da anketiranci splošno menijo, da dobro poznajo pojem socialna infrastruktura. Povprečna vrednost prvega vprašanja je 4,25.
Pri drugem vprašanju je vrednost nekoliko nižja, in sicer so splošno anketiranci odgovorili s 3,42. Zadovoljstvo z razvojem socialne infrastrukture v Sloveniji na področju medgeneracijskega sobivanja mladih in starostnikov dosega srednjo vrednost in je nekoliko nižje od splošne ocene razumevanja pojma socialna infrastruktura.
Na tretje vprašanje, ki se nanaša na vpliv novih tehnoloških rešitev razvoj socialne infrastrukture na področju medgeneracijskega sobivanja mladih in starostnikov, so anketiranci povprečno odgovorili z enako vrednostjo kot pri drugem vprašanju, in sicer 3,42. Ob pregledu anketnega vprašalnika ugotovimo, da posamezniki niso obkrožili pri zadnjih dveh vprašanjih enakih vrednosti, le skupno povprečje je slučajno enako. Na splošno anketiranci menijo, da bo vpliv novih tehnoloških rešitev srednje vplival na področje medgeneracijskega sobivanja mladih in starostnikov.

### 6.1.4 Sklep

Z metodo sistematičnega pregleda literature smo ugotovili, da je pojem socialna infrastruktura lahko obravnavan v več različnih pomenih. Glede na različno interpretacijo pojma socialna infrastruktura v tuji in domači literaturi, smo s kvalitativno in kvantitativno raziskavo preučili razumevanje besedne zveze socialna infrastruktura. Obe empirični raziskavi sta potrdili zastavljeno hipotezo, da ljudje pojem socialna infrastruktura poznajo, a si ga razlagajo na različne načine. Ob izvedbi intervjujev so do izraza prišli predvsem notranji dejavniki oseb, njihova osebna naravnanost in preživljanje časa. Pri interpretaciji pojma socialna infrastruktura so intervjuvanci podajali primere ustanov iz svojega življenjskega obdobja npr. dom za starejše občane, razred, knjižnica, delovno okolje.

Nadaljnje smo raziskovali zadovoljstvo z razvojem socialne infrastrukture v Sloveniji na področju medgeneracijskega sobivanja mladih in starostnikov in ugotovili, da stopnja dosega srednjo vrednost. Glede na rezultate empiričnih raziskav lahko sklepamo, da so možnosti izboljšanja v Sloveniji velike in da bi le-te lahko vplivale tudi na nepremičninski trg, kot to navaja Shim (2020). V Severni Koreji veliko težo poleg faktorja zdravja in varnosti nosi tudi socialna blaginja, ki je po našem mnenju v veliki meri povezana s socialno infrastrukturo na področju medgeneracijskega sobivanja mladih in starostnikov. Sandoval-Felix (2021) podobno omenja nujnost pridobivanje novih naselitvenih področjih v Mehiki in s tem povezanimi povečanimi možnostmi ekonomskega in socialnega razvoja.

V nadaljevanju smo z metodo sistematičnega pregleda literature ter dvema empiričnima metodama raziskali še vpliv tehnološkega razvoja na medgeneracijsko sobivanja mladih in starostnikov. Raškovič (2019) opozarja na kritično obdobje na področju managementa nepremičnin na Slovaškem predvsem z vidika pomanjkanja tehnološkega razvoja. Rezultati ankete naše razvojne naloge so pokazali, da na splošno anketiranci menijo, da bo vpliv novih tehnoloških rešitev srednje vplival na področje medgeneracijskega sobivanja mladih in starostnikov. Enako kot anketa pa tudi intervju tako ni potrdil naše druge zastavljene hipoteze, da bodo mnenja velike večine udeležencev v intervjuju kazala naklonjenost k tehnološkemu razvoju in njegovemu pozitivnemu vplivu na medgeneracijsko sodelovanje. Na tehnološki razvoj najbolj optimistično zrejo predvsem starejši, srednja generacija in mlajši pa so ob tem nekoliko zadržani.

## 6.2 RRI 2: Trajnostna gradnja

### 6.2.1 Sistematični pregled literature

Predmet naloge oziroma raziskave je trajnostna gradnja. Zanimalo nas je, kaj trajnostna gradnja je, kako je obravnavana v literaturi ter predvsem kako ljudje v Sloveniji razumejo trajnostno gradnjo.

Najprej smo izbrali bazo znanj oziroma podatkovno zbirko iz katere se je izbirala strokovna literatura. Odločili smo se, da za sistematični pregled literature uporabimo bazo podatkov ScienceDirect (https://www.sciencedirect.com), ki predstavlja podatkovno zbirko večjega založnika Elsevier.

Po izbiri baze podatkov ScienceDirect, se je v bazi podatkov vklopilo napredni iskalnik (Advanced Search), kamor se je vpisalo ključne besede. Rezultate se je potem ožilo z izborom dodatnih kriterijev, kot je razvidno iz spodnje tabele:

| Ključna beseda | Nadaljnji korak ožanja izbora | Število zadetkov |
|---|---|---|
| **Sustainable construction** | | 337.044 |
| | Dodatno vnesena besedna zveza »socialinfrastructure« | 62.496 |
| | Dodatno vnesena beseda »building« | 45.928 |
| | Omejitev na obdobje 2017 -2021 | 30.424 |
| | Omejitev na rezultate, ki imajo priložen celoten članek ali besedilo | manj kot 3.000 |
| | Osredotočenje na prvih 10% (iskalnik na višjih mestih vedno postavi relevantnejše članke) zadetkov znotraj vsakega leta | manj kot 300 |
| | Pregled naslovov in izbor glede na primernost naslova | 50 |
| | Pregled povzetkov člankov in izbor najprimernejših | 13 |

Pri izboru najprimernejše literature smo poskušali zbrati literaturo, ki pokriva širši spekter trajnostne gradnje, od samih stavb, preko cestne infrastrukture pa do komunalne infrastrukture. Poskušali smo izbrati članke, ki niso osredotočeni samo na eno državo, ampak predstavljajo širši mednarodni vidik oziroma predstavljajo primere po povsem različnih državah. Eden od rezultatov predstavlja poglavje določene knjige (Book Chapter), ostali pa so raziskovalni članki (Research Article). Pri tem se en članek eksplicitno nanaša na sam pregled literature iz tega področja, kar nam omogoča kasnejše širjenje pregleda literature na pomembnejšo drugo literaturo.

| | Leto izdaje | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 1. | 2020 | Sam Solaimani, Mohamad Sedighi | Journal of Cleaner Productio nVolume 248, 1 March 2020, 119213 | **Toward a holistic view onlean sustainable construction: Aliterature review** | Lean construction, Sustainability Triple bottom line, Systematic literature review | The need for sustainable built environment is pressing; an urgency that spans environmental, economic and social values of sustainability. Since late 1980s, the Lean philosophy has been adopted in the construction sector, with a focus on efficiency, predominantly as a function of economic competence. More recently, however, the Lean principles and practices have been revisited and increasingly usedto create and preserve social and environmental values as well. The result was a growing, but dispersed, body of knowledge on sustainability and Lean construction, and hence, equivocal about how Lean contributes to sustainability. By means of a Systematic Literature Review (SLR) based on 118 journal articles from 1998 to 2017, this article aims to provide a comprehensive understanding of "how Lean helps achieve and maintain sustainability in construction sector". The findings are structured into a holistic framework, which underlines a multidimensional approach toward sustainability, i.e., focus on stakeholders, across various construction phases, while simultaneously being heedful of concerns regarding people, planet, and profit. Itbecame clear that the current body of knowledge is mainly skewed toward economic values, which calls for more research in the social and environmental aspects of construction. This study assembles a palette of existing best practices, based on whichscholars' and practitioners' can balance their efforts across three dimensions of sustainability. Moreover, it identifies several under-researched areas of Lean sustainable construction that have the potential to be expanded in by future researchers. |
| 2. | 2021 | Noorsaidi Mahat, Joseph Taha, Christos Vidalakis, Achara Khamaksornc, Orawit Thinnukool, Mohd Iskandar Abd Malek | Data in Brief Volume 39, December 2021, 107556 | Data identification of determinants affecting the adoption of sustainable construction: The perspective of residential building developers | Likert scale, Questionnaire, Sustainable construction, Barriers, External drivers, Adoption | This data paper shows the perspectives by developers of housing on factors of the sustainable construction adoption. The Data was collected by using formal Likert scale questionnaire as main instrument. Simple random sampling was used to assignquestionnaires to respondents. Data samples were evaluated using index and rating. The data will provide information on the most variables that considered as main factors for sustainable construction adoption. The importance between variables canprovide information that will contribute to the expedition of sustainable practise in housing projects in Malaysia. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3. | 2021 | Mohammad Nasereddin, Andrew Price | Developments in the Built EnvironmentVolume 7, July 2021, 100049 | **Addressing thecapital cost barrier to sustainable construction** | Sustainability, Housing, Whole-life cost, Value, Quality | This paper aims to address the capital cost barrier to sustainable construction (SC). Concepts and processes associated with sustainable construction, value management (VM) and total quality management (TQM) have been integrated into a novel approach to whole life cost reduction based on a framework and three supporting processes aimed at improving project management understanding and decision making. Data collection was a triangulated approach across three stages: focus groups(23 participants); Delphi study (8 participants – 2 rounds); and validation questionnaire (20 respondents). The research revealed that the capital cost of a LEED silver certified building in Jordan is around 20–25% over the traditionalbuildings' capital cost. However, the increased capital cost that clients' in Jordan consider being acceptable for LEED is 5–10% - irrespective of the savings in operational costs. |
| 4. | 2021 | Paivi Pelli | Cleaner Engineering and TechnologyVolume 2, June 2021 | Service innovation and sustainable construction: Analyses of wood vis-a-vis other construction projects | System evolution, Services, Markets, Wood construction, Product-service systems PSS | Wood-based solutions are promoted for sustainable construction. In parallel, technological applications are expected to elevate construction and built environment to a new level of energy and resource efficiency, and enhance the environmental as well as human health and wellbeing impacts by smart bundling of products and services. Policies call for a profound system change in construction. Such shift necessitates technological and non-technological innovations as well as new conceptualizations. This research elaborates an analytic framework to discuss system change in the complex product systems of construction. Wood-based solutions are assessed vis-à-vis other sustainable construction projects to detect service innovation as new outputs, inputs, and processes in the markets, and consider the system change potential in evolving product-service systems (PSS). Analyses of eight projects and altogether 89 companies in Finland indicate that while wood-based solutions aim at industrial efficiency in the established construction processes, parallel sustainable construction projects and the contributing companies exemplify more versatile serviceinnovations. The industrial efficiency unfolding from the sustainable construction niches and the company operations in the markets illustrates evolving PSS. The data exemplifies how the increasing integration leads into dismantling of operations and new configurations of tasks, and the increasing standardization due to fine-granule modularity and customization leads to increasing diversification of operations. Alternative scenarios should be explored to assess the systemic changesand their impacts on clean technology solutions. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5. | 2021 | Abdulrahman Haruna, Nasir Shafiq, O.A. Montasir | Ain Shams Engineering Journal | Building information modelling application for | Building information modelling, | Increasing attention was given to building information modeling (BIM) and multi- criteria decision-making (MCDM) globally due to their advantages for various stagesof the life cycle of a building. Theaim of this paper is to improve practitioners' understanding of the process for BIM and MCDM adoptiontowards sustainable construction through energy efficiency. A questionnaire survey is being conductedfor |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Volume 12,Issue 1, March 2021, Pages 293-302 | developing sustainablebui lding (Multi criteria decision making approach) | Analytical network process, Design, Sustainability, Survey, Management | construction professionals and building industry experts in Malaysia. With expert survey data, amulti-criteria decision model using analytical network process (ANP) was built to identify key factorsaffecting sustainable building by reducing both embodied and operational energy and carbon emissions.Data from the survey was analysed using descriptive statistics. Model developed consisted of three clus-ters with a total of six nodes, and the level of importance was compared pairwise with oneanother.Results shows that design optimisation, reduced material requirements are important factors for sustain-able construction considered in the BIM application. |
| 6. | 2021 | Yongze Song, Peng Wu, Keith Hampson, ChimayAnumba | International Journal of Applied Earth Observation and Geoinformation Volume105, 25 December 2021, 102585 | Assessing block-level sustainable transport infrastructure development using a spatial trade-off relation model | Geography, Sustainable, infrastructre development, Spatial tradeoff, Spatial analysis, Earth, sensor and social data, Spatial heterogeneity, Sustainable Development Goals (SDGs) | Increasing quantity and quality of roads are pathways to sustainable road infrastructure development. Under-standing quantity-quality relations of road sustainability is critically required for strategic decision making. However, few knowledge are available about assessing quantity-quality relations of road sustainability from a perspective of spatial disparities. Here, we developed a SpatialTrade-Off Relation (STOR) model for assessing road quantity-quality trade-off relations at 42,425 blocks in Western Australia (WA). First, a sustainable road infrastructure index (SRII), including quantity and quality phases, was developed regarding stakeholder re-quirements and using multiple spatial methods to examine block-level road sustainability. Next, quantity-quality trade-off relations for road sustainability was investigated using a diminishing marginal utility approach.<br>Further, spatial disparities of quantity-quality trade-offs were assessed through the spatial clustering based identification of hotspots and cold spots in trade-offs. Finally,contributions of the road quantity-quality inter-action to economic development were estimated with the consideration of non-linear and geographically local characteristicsof the associations using a generalized additive model and geographically weighted regression. We found three stages of the quantity-quality relations of road sustainability, including the increasing, marginal, and negative returns. The increasingreturn revealed the simultaneous growth of quantity and quality in outer and remote regions, and marginal and negative returns were primarily located in major cities. In addition, regional disparities of the trade-offs were found from the identified blocks, towns and villages, where quantity and quality were spatially clustered, for informingpriorities of future strategic decisions. We also found that the contribution of road quality was about three times the contribution of quantity to resident income. This study demonstrated that efforts regarding regional quantity-quality trade-offs were<br>required to achieve global sus-tainable infrastructure development goals. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7. | 2021 | Daniel Stokols | Social Ecology inthe Digital Age | 8: Designing Resilient and Sustainable Communities | Alternative decentralized infrastructures | This chapter identifies strategies for improving the design and sustainability of builtenvironments. Resilience and sustainability are viewed at different scales as they apply to buildings, neighborhoods, communities, regional, and global ecosystems. *Resilience* is a system's capacity to absorb disturbance while maintainingits essential functions and structure intact, whereas *sustainability* is its ability to meet |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Solving Complex Problems in a Globalized World 2018, Pages 265-317 | | Ecological accounting<br>Environmental stewardship<br>Evidence-based guidelines for sustainable communities<br>Landscape ecological urbanism<br>Life cycle analysis<br>Millennium ecosystem assessment<br>Resilience<br>Sustainability<br>Sustainable development goals<br>Sustainable lifestyles | current demands without sacrificing its potential to satisfy future needs. Research andpolicy initiatives to promote *sustainable development* including the *United Nations Sustainability Development Goals* (*SDGs*) and the *Millennium Ecosystem Assessment* are described. The UN SDGs underscore the importance of balancing economic development with other needs, e.g., conserving natural resources, minimizing pollution, and ensuring social inclusion and equitable governance. The chapter outlines planning and design guidelines for creating sustainable communitiessuch as incorporating abundant greenery into urban areas, engaging citizens in environmental stewardship, and encouraging nonmotorized transit (e.g., biking, walking). These strategies *reduce environmental costs* of buildings and urban infrastructures, *promote social cohesion*, and strengthen the *psychological resilience* and *physical health* of community members. The chapter also considers behavioral and educational initiatives to promote environmentally supportive valuesand lifestyles among individuals and groups—crucial prerequisites for ensuring societal and global sustainability. |
| 8. | 2021 | Shahana Y. Janjua, Prabir K. Sarker, Wahidul K. Biswas | Environmental and Sustainability Indicators Volume 10, June 2021, 100109 | **Sustainability implications ofservice life on residential buildings – An application of life cycle sustainability assessment** | Life cycle sustanability assessment, Buildings, Sustainability, Service life, Key performance indicators, Western Australia | Sustainable building design should consider durability, affordability, resource conservation, intra and inter-generational social equity aspects, and stakeholder's perspective throughout its service life. This research has applied life cycle sustainability assessment (LCSA) framework to estimate the sustainability performance in terms of a single score, and to identify avenues for sustainability improvement strategies of buildings. These case study buildings were modeled by taking into account the variation in building materials while maintaining architectural designs, covered area and location constant. The paper demonstrate the flexibility of this LCSA framework as all indicators are interlinked and any change or improvementin one or some indicators affects others positively and negatively. The sustainability objectives were assessed on an annual basis to capture the implications of the variation in the service life of buildings. Buildings made of recycled |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | **framework** | | steel-framed |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | roof, brick walls, and green concrete used in slab footing, showed higher sustainability performance among case study buildings. The use stage energy consumption and maintenance activities have been identified as the main hotspot. Thecleaner production strategies (CPS) including product modification (double glazed window) and technology modification (rooftop solar photovoltaic panels, solar water heaters) were thus deemed appropriate to further reduce the use stage triple bottom line (TBL) impacts. These CPS have improved the sustainability performance of the case study buildings by 30–49%. The LCSA analysis confirms that the service life of buildings and their components have a significant bearing on the overall sustainability performance of residential buildings. However, the material selection at the design phase is crucial to building sustainability performance due to its durability<br>and thermal properties. The longer service life of the building could result in more sustainable buildings only if service life of the non-structural components is alignedwith service life of building to mitigate the maintenance activities. |
| 9. | 2020 | Chidubem Iddianozie, Paulito Palmes | SustainableCities and Society Volume 62, November 2020, 102367 | **Towards smart sustainable cities: Addressing semantic heterogeneity in Building Management Systems using discriminative models** | AI for buildings, Smart sustainable cities, IoT devices, Building Management Systems, Energy management, Time series classification | Building Management Systems (BMS) are crucial in the drive towards smart sustainable cities. This is due to the fact that they have been effective in significantlyreducing the energy consumption of buildings. A typical BMS is composed<br>of *smart* devices that communicate with one another in order to achieve their purpose.However, the *heterogeneity* of these devices and their associated meta-data impede the deployment of solutions that depend on the interactions among these devices.<br>Nonetheless, automatically inferring the semantics of these devices using data-drivenmethods provides an ideal solution to the problems brought about by this heterogeneity. In this paper, we undertake a multi-dimensional study to address the problem of inferring the semantics of IoT devices using machine learning models.<br>Using two datasets with over 67 million data points collected from IoT devices, we developed discriminative models that produced competitive results. Particularly, our study highlights the potential of Image Encoded Time Series (IETS) as a robust alternative to statistical feature-based inference methods. Leveraging just a fraction ofthe data required by feature-based methods, our evaluations show that this encoding competes with and even outperforms traditional methods in many cases. Chidubem IddianoziePaulito Palmes |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10. | 2020 | Abdullah Al-Saggaf, Mahmoud Taha, Tarek Hegazy, Hani Ahmed | Procedia Manufacturing Volume 44, 2020, Pages 140-147 | **Towards Sustainable Building Design: The Impact of Architectural Design Features on** | cooling consumption, design features, scoring system, hot climates, sustainable design, | Energy-saving has become a high priority in the Architectural design of buildings, particularly in hot climate regions like Saudi Arabia. Thus, selecting the appropriate Architectural Design Features (ADFs) at the early design stage provides significant opportunity to manage heat flow, prevent excessive energy consumption, and maintain a comfortable temperature for the occupants. In this research, a structured “Architectural based-Energy Impact Scoring System (AEISS)” has been developed. The system incorporates seven key ADFs that were identified based on inputs from a large number of experienced architects, and embody 40 different design options. To |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | **Cooling Energy Consumption and Cost in Saudi Arabia** | Building Information Modeling (BIM), energy simulation, Ecotect, Saudi Arabia | support designers in selecting and evaluating, including energy analysis, of any Architectural design that has any combination of design options, AEISS incorporatesa comprehensive decision scoring system. Energy analysis is performed using a simulation tool (Ecotect®) that is integrated with the Revit BIM models. To validateAEISS, three design alternatives were evaluated for a residential building in Saudi Arabia. Using AEISS, it was possible to arrive at the optimum design. This research presents a scientific decision-making approach to quantify design alternatives while reducing designers' subjectivity in the evaluation process. |
| 11. | 2019 | Hikmat H.Ali, Ayat A.Alkayed | Alexandria Engineering Journal Volume 58, Issue 3, September 2019, Pages 1011-1023 | **Constrains andbarriers of implementing sustainability into architectural professional practice in Jordan** | Sustainable buildings, Professional practice, Obstacles, Jordan | Sustainable buildings created a challenge for architectural professional practice in Jordan, and no doubt that there are many obstacles to the widespread of implementingsustainable building practices. An experimental investigation was conducted to explore the level of implementing sustainable building practices into professional practice, as well as identifying the obstacles of implementing sustainable building practices. The research conducted an analytical survey; to reach the main causes. Bothqualitative and quantitative approaches were going to be supported by multiple supportive methods and tools to ensure the most effective outcomes. It was found the weight of each of the financial, social, steering and capacity factors that dominate the current reality. Based on the results, the effect of each of factors will vary in different proportions, where steering factors bear the greatest impact, which highlighting the components associated with it; then the capacity factors, the results show the convergence of the influence of both financial and social factors. |
| 12. | 2017 | N.Aste, R.S.Adhikari, C.Del Pero, F.Leonforte, I.Timis | Energy Procedia Volume 105, May 2017, Pages 2803-2810 | **SustainableBuilding Design in Kenya** | Sulstainable building design, energy performance, economic analysis, East Africa | Sustainable design strategies involve complex interactions among social, economic and environmental factors those should be analyzed and solved quite differently by heterogeneous disciplines and stakeholders involved. Focusing on the cities of developing countries in tropical regions, characterized by fast urban population growth and a staggering increase in the energy consumption for building sector, it emerges that appropriate active strategies and building energy optimizations are promptly recommended. For this purpose, in the present work, energy evaluations were carried out for the designing of a residential building in Nairobi, Kenya, considering different strategies and solutions, taking into account also the affordability and considering the possibility to push local based economies through the use of built-on-site materials. This strategy may lead to a significant cost reduction and energy saving due to lower construction costs and in addition also a lower embodied energy of the building materials. Furthermore, in a region understudy, characterized by unstable economic security, the employment of local labor |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | forcesmay lead to the formation of local based economies. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13. | 2017 | Khim Chye GaryOng | Procedia Engineering Volume 171, 2017, Pages 14-21 | **Sustainable Construction for Singapore's Urban Infrastructure – Some Research Findings** | Sustanable, Construction, Urban, Infrastructure, microwave-assisted beneficiation, design for disassembly | Many cities around the world can afford the old model of urban sprawl, where the cityboundary grows outwards. However, in small city states like Singapore, evolving the city of the future will be very different. Singapore requires development of holistic sustainable technologies and solutions for sustainable infrastructure to meet future social and economic needs. This includes adopting building designs, construction methods and materials that are environmentally-friendly, as well as using materials and resources that have sustainable supplies. A brief update of some research findingsto address Singapore's infrastructural sustainability needs is presented. |

**Sklep k sistemtičnemu pregledu literature:**

S sistematičnim pregledom literature na temo »trajnostne gradnje« smo uspeli zbrati 13 člankov oziroma besedil, ki prikazujejo kako zelo široko področje pokriva trajnostna gradnja. Glede na izbrano literaturo lahko vidimo, da se avtorji v različnih državah osredotočajo na različne vidike trajnostne gradnje. Medtem ko se nekateri bolj osredotočajo na trajnostno gradnjo infrastrukture, se drugi osredotočajo na trajnostno gradnjo na splošno, še s posebnim poudarkom na trajnostni gradnji stanovanjskih nepremičnin. Tudi problemi, ki jih avtorji odpirajo glede trajnostne gradnje so zelo različni.

Po opravljenem sistematičnem pregledu literature ugotovimo, da različni avtorji različno definirajo trajnostno gradnjo, skupno večini definicij pa je, da gre pri trajnostni gradnji za način gradnje, ki sledi načelom skrbnega varovanja z okoljem, krožnega gospodarstva ter ohranjanja naravnih virov.

Po pregledu izbrane literature se nam kot eno od zanimivejših vprašanj, na katerega izbrana literatura ne da jasnega odgovora, postavlja vprašanje ali smo kot družba, oziroma kot posamezniki pripravljeni plačati nekaj več za trajnostno gradnjo v primerjavi s klasično gradnjo.

Glede na izpostavljeno problematiko, pripravimo tri vprašanja, ki jih zastavimo preko ankete in z vprašalnikom.

## 6.2.2 Kvalitativna raziskava

V naslednjem koraku smo s telefonsko anketo šestim anketirancem zastavili sledeča tri vprašanja:

1. Ali vam je poznan pojem "Trajnostna gradnja" ?
2. Ali podpirate gradnjo, ki sledi načelu skrbnega varovanja z okoljem, krožnega gospodarstva ter ohranjanja naravnih virov?
3. Če bi se lotili gradnje lastne hiše, ali ste pripravljeni plačati nekaj višje stroške, če s tem pridobite stavbo, ki izpolnjuje pogoje trajnostne gradnje?

V naslednjih tabelah prikazujemo rezultate in zaključke izvedene ankete.

**ANKETA**

Ključne besede: Trajnostna gradnja

Vprašanja ankete:

1. Ali vam je poznan pojem "Trajnostna gradnja" ?
2. Ali podpirate gradnjo, ki sledi načelu skrbnega varovanja z okoljem, krožnega gospodarstva ter ohranjanja naravnih virov?
3. Če bi se lotili gradnje lastne hiše, ali ste pripravljeni plačati nekaj višje stroške, če s tem pridobite stavbo, ki izpolnjuje pogoje trajnostne gradnje?

| Udeleženec: | Spol M/Ž | Starost ( 20-60 let, nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | V1 | V2 | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | Ž | 20 -60 | SŠ | center | | Pozna pojem trajnostne gradnje | Podpira trajnostno gradnjo | Pripravljen plačati več za trajnostno gradnjo. |
| 2 | M | 20 - 60 | F | okolica mesta | | Pozna pojem trajnostne gradnje | Podpira trajnostno gradnjo | Ni pripravljen plačati več za trajnostno gradnjo. |
| 3 | Ž | nad 60 | OŠ | ruralno okolje | | Ne pozna pojma trajnostne gradnje | Ne podpira trajnostne gradnje | Ni pripravljen plačati več za trajnostno gradnjo. |
| 4 | Ž | 20 - 60 | F | okolica mesta | | Zelo dobro pozna pojem trajnostne gradnje | Podpira trajnostno gradnjo | Pripravljen plačati več za trajnostno gradnjo. |
| 5 | M | 20 -60 | SŠ | center | | Pozna pojem trajnostne gradnje | Podpira trajnostno gradnjo | Ni pripravljen plačati več za trajnostno gradnjo. |
| 6 | M | nad 60 | OŠ | okolica mesta | | Ne pozna pojma trajnostne gradnje | Ne podpira trajnostne gradnje | Ni pripravljen plačati več za trajnostno gradnjo. |

**VPRAŠANJE 1:** Ali vam je poznan pojem "Trajnostna gradnja" ?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Poznan | 2/3 moških pozna pojem trajnostne gradnje. 1/3 moških ne pozna pojma trajnostne gradnje | | Poznavanje pojma trajnostne gradnje ni odvisno od spola anketirancev. |
| 2 | | | | | Poznan | | | |
| 3 | | | | | Ni poznan | | | |
| 4 | | | | | Zelo dobro poznan | 2/3 žensk pozna pojem trajnostne gradnje, pri čemer 1/3 zelo dobro pozna ta pojem. 1/3 žensk ne pozna pojma trajnostne gradnje. | | |
| 5 | | | | | Poznan | | | |
| 6 | | | | | Ni poznan | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: STAROST**

| Udeleženec: | 20 -60 let | nad 60 let | | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Poznan | Anketiranci nad 60 let ne poznajo pojma trajnostne gradnje. | | Starejši anketiranci ne poznajo pojma trajnostne gradnje, medtem ko ga mlajši anketiranci poznajo. |
| 2 | | | | | Poznan | | | |
| 3 | | | | | Ni poznan | | | |
| 4 | | | | | Zelo dobro poznan | Anketiranci od 20 do 60 let vsi poznajo pojem trajnostne gradnje. | | |
| 5 | | | | | Poznan | | | |
| 6 | | | | | Ni poznan | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Poznan | Anketiranci z osnovno šolo ne poznajo pojma trajnostne gradnje. | | Poznavanje pojma trajnostne gradnje premosorazmerno narašča s stopnjo izobrazbe. |
| 2 | | | | | Poznan | | | |
| 3 | | | | | Ni poznan | Anketiranci s srednjo šolo poznajo pojem trajnostne gradnje. | | |
| 4 | | | | | Zelo dobro poznan | | | |
| 5 | | | | | Poznan | Anketiranci s fakultetno izobrazbo dobro poznajo pojem trajnostne gradnje. | | |
| 6 | | | | | Ni poznan | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica | ruralno | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Poznan | Anketiranci iz centra mesta vsi poznajo pojma trajnostne gradnje. | | Poznavanje pojma trajnostne gradnje pada z oddaljenostjo od centra mesta. |
| 2 | | | | | Poznan | | | |
| 3 | | | | | Ni poznan | Anketiranci iz okolice mesta mešano (nekater da, nekateri ne) poznajo pojem trajnostne gradnje. | | |
| 4 | | | | | Zelo dobro poznan | | | |
| 5 | | | | | Poznan | Anketiranci iz ruralnega okolja ne poznajo pojma trajnostne gradnje. | | |
| 6 | | | | | Ni poznan | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** Ali podpirate gradnjo, ki sledi načelu skrbnega varovanja z okoljem, krožnega gospodarstva ter ohranjanja naravnih virov?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Podpira | 2/3 moških podpira trajnostno gradnjo. 1/3 moških ne podpira trajnostne gradnje. | | Podpiranje trajnostne gradnje ni odvisno od spola anketirancev. |
| 2 | | | | | Podpira | | | |
| 3 | | | | | Ne podpira | | | |
| 4 | | | | | Podpira | 2/3 žensk podpira trajnostno gradnjo. 1/3 žensk ne podpira trajnostne gradnje. | | |
| 5 | | | | | Podpira | | | |
| 6 | | | | | Ne podpira | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: STAROST**

| Udeleženec: | 20 -60 let | nad 60 let | | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Podpira | Anketiranci nad 60 let ne podpirajo trajnostne gradnje. | | Starejši anketiranci ne podpirajo trajnostne gradnje, medtem ko mlajši anketiranci podpirajo trajnostno gradnjo. |
| 2 | | | | | Podpira | | | |
| 3 | | | | | Ne podpira | | | |
| 4 | | | | | Podpira | Anketiranci od 20 do 60 let vsi podpirajo trajnostno gradnjo. | | |
| 5 | | | | | Podpira | | | |
| 6 | | | | | Ne podpira | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Podpira | Anketiranci z osnovno šolo ne podpirajo trajnostne gradnje. | | Trajnostno gradnjo podpirajo anketiranci s srednjo in fakultetno izobrazbo. Anketiranci z osnovnošolsko izobrazbo ne podpirajo trajnostne gradnje. |
| 2 | | | | | Podpira | | | |
| 3 | | | | | Ne podpira | Anketiranci s srednjo šolo podpirajo trajnostno gradnjo. | | |
| 4 | | | | | Podpira | | | |
| 5 | | | | | Podpira | Anketiranci s fakultetno izobrazbo podpirajo trajnostno gradnjo. | | |
| 6 | | | | | Ne podpira | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica | ruralno | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Podpira | Anketiranci iz centra mesta vsi podpirajo trajnostno gradnjo. | | Podpora trajnostni gradnji pada z oddaljenostjo od centra mesta. |
| 2 | | | | | Podpira | | | |
| 3 | | | | | Ne podpira | Večina anketirancev iz okolice mesta podpira trajnostno | | |
| 4 | | | | | Podpira | | | |
| 5 | | | | | Podpira | Anketiranci iz ruralnega okolja ne podpirajo trajnostne gradnje. | | |
| 6 | | | | | Ne podpira | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** Če bi se lotili gradnje lastne hiše, ali ste pripravljeni plačati nekaj višje stroške, če s tem pridobite stavbo, ki izpolnjuje pogoje trajnostne gradnje?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Pripravljen plačati več | Moški niso pripravljeni plačati več za lastno trajnostno gradnjo. | | Ženske so bolj pripravljene plačati več za lastno trajnostno gradnjo kot moški. |
| 2 | | | | | Ni pripravljen plačati več | | | |
| 3 | | | | | Ni pripravljen plačati več | | | |
| 4 | | | | | Pripravljen plačati več | 2/3 žensk je pripravljenih plačati več za lastno trajnostno gradnjo. | | |
| 5 | | | | | Ni pripravljen plačati več | | | |
| 6 | | | | | Ni pripravljen plačati več | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: STAROST**

| Udeleženec: | 20 -60 let | nad 60 let | | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Pripravljen plačati več | Anketiranci nad 60 let niso pripravljeni plačati več za lastno trajnostno gradnjo. | | Starejši anketiranci niso pripravljeni plačati več za lastno trajnostno gradnjo, medtem ko je pri mlajših anketirancih pripravljenost plačati več razdeljena. |
| 2 | | | | | Ni pripravljen plačati več | | | |
| 3 | | | | | Ni pripravljen plačati več | | | |
| 4 | | | | | Pripravljen plačati več | Polovica anketirancev od 20 do 60 je pripravljena plačati več za lastno trajnostno gradnjo. | | |
| 5 | | | | | Ni pripravljen plačati več | | | |
| 6 | | | | | Ni pripravljen plačati več | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: IZOBRAZBA**

| Udeleženec: | OŠ | SŠ | F | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Pripravljen plačati več | Anketiranci z osnovno šolo niso pripravljeni plačati več za lastno trajnostno gradnjo. | | Anketiranci z osnovnošolsko izobrazbo niso pripravljeni plačati več za lastno trajnostno gradnjo, medtem ko je pripravljenost plačati več razdeljena pri tistih s srednješolsko in fakultetno izobrazbo. |
| 2 | | | | | Ni pripravljen plačati več | | | |
| 3 | | | | | Ni pripravljen plačati več | Anketiranci s srednjo šolo so razdeljeni glede pripravljenosti plačati več za lastno trajnostno gradnjo. | | |
| 4 | | | | | Pripravljen plačati več | | | |
| 5 | | | | | Ni pripravljen plačati več | Anketiranci s fakultetno izobrazbo so razdeljeni glede pripravljenosti plačati več za lastno trajnostno gradnjo. | | |
| 6 | | | | | Ni pripravljen plačati več | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica | ruralno | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | Pripravljen plačati več | Anketiranci iz centra mesta so razdeljeni glede pripravljenosti plačati več za trajnostno gradnjo. | | Anketiranci iz ruralnega okolja niso pripravljeni plačati več za trajnostno gradnjo, medtem ko so ankeiranci iz centra in oklolice razdeljeni glede pripravljenosti plačati več za trajnostno gradnjo. |
| 2 | | | | | Ni pripravljen plačati več | | | |
| 3 | | | | | Ni pripravljen plačati več | Anketiranci iz okolice mesta so razdeljeni glede pripravljenosti plačati več za trajnostno gradnjo. | | |
| 4 | | | | | Pripravljen plačati več | | | |
| 5 | | | | | Ni pripravljen plačati več | Anketiranci iz ruralnega okolja niso pripravljeni plačati več za trajnostno gradnjo. | | |
| 6 | | | | | Ni pripravljen plačati več | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**ZAKLJUČEK ANKETE**

| Vprašanja | Spol M/Ž | Starost (20-60 let, nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | Sklep |
|---|---|---|---|---|---|---|
| V1 | Poznavanje pojma trajnostne gradnje ni odvisno od spola anketirancev. | Starejši anketiranci ne poznajo pojma trajnostne gradnje, medtem ko ga mlajši anketiranci poznajo. | Poznavanje pojma trajnostne gradnje premosorazmerno narašča s stopnjo izobrazbe. | Poznavanje pojma trajnostne gradnje pada z oddaljenostjo od centra mesta. | | Slabše poznavanje pojma trajnostna gradnja je značilno za območja, ki so bolj oddaljena od centra mesta, za manj izobražene ter za starejše ljudi. |
| V2 | Podpiranje trajnostne gradnje ni odvisno od spola anketirancev. | Starejši anketiranci ne podpirajo trajnostne gradnje, medtem ko mlajši anketiranci podpirajo trajnostno gradnjo. | Trajnostno gradnjo podpirajo anketiranci s srednjo in fakultetno izobrazbo. Anketiranci z osnovnošolsko izobrazbo ne podpirajo trajnostne gradnje. | Podpora trajnostni gradnji pada z oddaljenostjo od centra mesta. | | Podpora trajnostni gradnji pada z oddaljenostjo od centra mesta. Trajnostne gradnje ne podpirajo starejši in manj izobraženi. |
| V3 | Ženske so bolj pripravljene plačati več za lastno trajnostno gradnjo kot moški. | Starejši anketiranci niso pripravljeni plačati več za lastno trajnostno gradnjo, medtem ko je pri mlajših anketirancih pripravljenost plačati več razdeljena na pol. | Anketiranci z osnovnošolsko izobrazbo niso pripravljeni plačati več za lastno trajnostno gradnjo, medtem ko je pripravljenost plačati več razdeljena pri tistih s srednješolsko in fakultetno izobrazbo. | Anketiranci iz ruralnega okolja niso pripravljeni plačati več za trajnostno gradnjo, medtem ko so ankeiranci iz centra in okolice razdeljeni glede pripravljenosti plačati več za trajnostno gradnjo. | | Pripravljenost plačati več za lastno trajnostno gradnjo so izrazile predvsem ženske, medtem ko moški niso pripravljeni plačati več. Pripravljenost plačati več za lastno trajnostno gradnjo je bistveno nižja od naklonjenosti trajnostni gradnji. |
| demografski del | | | | | | Združevanje odgovorov |

## 6.2.3 Kvantitativna raziskava

Po izvedeni anketi smo na 20 naslovov poslali še vprašalnik, ki je imel vprašanja prilagojena za taknačin raziskave.

Vprašalnik je imel sledečo obliko:

*1. Spol:*
*1) ženska 2) moški*
*2. Starost:*
*1) 20-60 let 2) več kot 60 let*
*3. Izobrazba:*
*1) osnovna šola 2) srednja šola 3) fakulteta*
*4. Kraj bivanja:*
*1) center mesta 2) okolica mesta 3)podeželje*
*5. Kako dobro poznate pojem »Trajnostna gradnja«? (ocene od 1 – ne poznam, do 5 – zelo dobropoznam)*
*1 2 3 4 5*
*6. Ali podpirate gradnjo, ki sledi načelu skrbnega varovanja z okoljem, krožnega gospodarstva terohranjanja naravnih virov? (ocene od 1 – ne podpiram, do 5 – zelo podpiram)*
*1 2 3 4 5*
*7. Ali ste pri gradnji lastne hiše pripravljeni plačati višje stroške za pridobitev stavbe, ki izpolnjuje pogoje trajnostne gradnje? (ocene od 1 – nisem pripravljen plačati nič več kot za običajno gradnjo,do 5 – pripravljen sem plačati bistveno več)*
*1 2 3 4 5*

Na odposlane vprašalnike smo prejeli 13 odgovorov, ki smo jih povzeli v tabelo in v tabeli na podlagiprejetih rezultatov naredili še sklepe oziroma zaključke.

**VPRAŠALNIK**

| Vprašanja | |
|---|---|
| | 1. Kako dobro poznate pojem »Trajnostna gradnja«? (ocene od 1 – ne poznam, do 5 – zelo dobro poznam) |
| | 2. Ali podpirate gradnjo, ki sledi načelu skrbnega varovanja z okoljem, krožnega gospodarstva ter ohranjanja naravnih virov? (ocene od 1 – ne podpiram, do 5 – zelo podpiram) |
| | 3. Ali ste pri gradnji lastne hiše pripravljeni plačati višje stroške za pridobitev stavbe, ki izpolnjuje pogoje trajnostne gradnje? (ocene od 1 – nisem pripravljen plačati nič več kot za običajno gradnjo, do 5 – pripravljen sem plačati bistveno več) |

| Udeleženec: | Spol M/Ž | Starost ( 20-60 let, nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | V1 | V2 | V3 |
|---|---|---|---|---|---|---|---|---|
| 1 | Ž | 20 -60 | F | center | | 5 | 5 | 5 |
| 2 | M | nad 60 | SŠ | okolica mesta | | 3 | 3 | 2 |
| 3 | M | 20 - 60 | F | okolica mesta | | 4 | 5 | 5 |
| 4 | Ž | 20 - 60 | F | center | | 3 | 4 | 3 |
| 5 | Ž | 20 -60 | F | center | | 3 | 3 | 3 |
| 6 | M | 20 - 60 | F | okolica mesta | | 2 | 5 | 3 |
| 7 | Ž | 20 - 60 | F | okolica mesta | | 4 | 4 | 3 |
| 8 | Ž | 20 -60 | SŠ | podeželje | | 2 | 5 | 3 |
| 9 | Ž | nad 60 | OŠ | okolica mesta | | 2 | 3 | 2 |
| 10 | M | 20 - 60 | SŠ | podeželje | | 3 | 4 | 4 |
| 11 | Ž | nad 60 | F | okolica mesta | | 3 | 3 | 3 |
| 12 | M | 20 - 60 | F | center | | 5 | 5 | 4 |
| 13 | M | 20-60 | F | center | | 3 | 3 | 1 |
| | | | | povprečna ocena: | | 3,23 | 4,00 | 3,15 |

| Vprašanja | Spol M/Ž | Starost (20-60 let, nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | Sklep |
|---|---|---|---|---|---|---|
| V1 | M (6): 3,33 | 20 - 60 let (10): 3,40 | OŠ (1): 2,00 | center (5): 3,80 | | Pojem trajnostne gradnje najslabše poznajo ljudje z osnovnošolsko izobrazbo, s podeželja ter starejši ljudje. Pojem trajnostne gradnje najbolje poznajo ljudje iz centra mesta, s fakultetno izobrazbo ter mlajši ljudje. |
| | Ž (7): 3,14 | nad 60 let (3): 2,67 | SŠ (3): 2,66 | okolica (6): 3,00 | | |
| | | | F (9): 3,56 | podeželje (2): 2,50 | | |
| | | | | | | |
| V2 | M (6): 4,17 | 20 - 60 let (10): 4,30 | OŠ (1): 3,00 | center (5): 4,00 | | Podpora trajnostni gradnji je najnižja med ljudmi z osnovnošolsko izobrazbo in med starejšimi. Presenetljivo je podpora trajnostni gradnji najvišja med ljudmi na podeželju. |
| | Ž (7): 3,86 | nad 60 let (3): 3,00 | SŠ (3): 4,00 | okolica (6): 3,83 | | |
| | | | F (9): 4,11 | podeželje (2): 4,50 | | |
| | | | | | | |
| V3 | M (6): 3,00 | 20 - 60 let (10): 3,40 | OŠ (1): 2,00 | center (5): 3,20 | | Pripravljenost plačati več za lastno trajnostno gradnjo je najnižja med ljudmi z osnovnošolsko izobrazbo in starejšimi, medtem ko je presenetljivo najvišja med ljudmi s podeželja. |
| | Ž (7): 3,29 | nad 60 let (3): 2,33 | SŠ (3): 3,00 | okolica (6): 3,00 | | |
| | | | F (9): 3,33 | podeželje (2): 3,50 | | |

### 6.2.4 Sklep

Po analizi rezultatov ankete in vprašalnika smo prišli do sledečih zaključkov:

Slovenci ne poznamo najbolje pojma trajnostna gradnja, saj so rezultati vprašalnika pokazali, da je poznavanje ocenjeno s povprečno oceno 3,23 od 5.

Da Slovenci res slabše poznamo sam pojem trajnostna gradnja, pa je pokazalo že drugo vprašanje, ki je bilo namenoma postavljeno v obliki kontrolnega vprašanja. Vprašanje o podpori trajnostni gradnji je bilo namreč namenoma postavljeno tako, da se je beseda trajnostna gradnja nadomestila s kratkim opisom trajnostne gradnje. Odgovori na to vprašanje so dosegli povprečje 4,00 od 5, kar pomeni, da je kar nekaj anketirancev šele ob tako postavljenem vprašanju spoznalo, kaj jih sploh sprašujemo. Takšen zaključek lahko naredimo na podlagi dejstva, da je ocena naklonjenosti trajnostni gradnji bistveno večja, kot je ocena samega poznavanja termina trajnostne gradnje.

Nato pa smo s tretjim vprašanjem anketirance z anketo in vprašalnikom s tretjim vprašanjem povprašali še o njihovi pripravljenosti plačati več za lastno trajnostno gradnjo. Rezultati vprašalnika so pokazali, da je pripravljenost za večje plačilo za trajnostno gradnjo neke srednje vrednosti (povprečna ocena 3,15 od 5) in da očitno večina Slovencev ni pripravljena plačati bistveno več za lastno trajnostno gradnjo. Pri tem smo z vprašalnikom dobili precej nepričakovan rezultat, da so ljudje na podeželju pripravljeni plačati največ za trajnostno gradnjo. Ta rezultat je bil nekoliko v nasprotju z rezultatom ankete, kjer se je izkazalo, da je pripravljenost plačati več za trajnostno gradnjo približno enaka med anketiranci v centru mesta in anketiranci na podeželju. Glede na majhno število izpolnjenih vprašalnikov ocenjujemo, da je lahko zato pri takem rezultatu prišlo tudi do statistične anomalije. Razlika med anketo in vprašalnikom je nastopila tudi pri vprašanju podpore trajnostni gradnji. Medtem, ko po anketi trajnostno gradnjo bolj podpirajo ženske kot moški, pa je vprašalnik dal zelo izenačene rezultate med spoloma. V vsem ostalem so rezultati v okviru pričakovanega.

Glavni zaključek raziskave je, da Slovenci nismo pripravljeni plačevati bistveno več za trajnostno gradnjo. Pri tem se najverjetneje Slovenci bistveno ne razlikujemo od ostalih evropejcev. Študija avtorjev Cespedes-Lopes idr. (2019) je pokazala, da so premije oziroma dodana vrednost za energetsko učinkovite stanovanjske nepremičnine primerjalno gledano najnižje ravno v Evropi. Kar pa dejansko pomeni, da so Evropejci za energetsko učinkovite stanovanjske nepremičnine (kot enega od elementov trajnostne gradnje) pripravljeni plačati manj kot ostali. Zato sklepamo, da so rezultati naše analize, ki zaključuje, da Slovenci nismo pripravljeni plačevati bistveno več za trajnostno gradnjo, povsem logični in pravilni.

## 6.3 RRI 3: Razvoj urbanega prostora

### 6.3.1 Sistematični pregled literature

V elektronski bazi smo pri iskanju uporabili besedno zvezo „razvoj urbanega prostora“ (urban space development) tudi v različnih kombinacijah in sicer na različne načine (vrstni red, iskalni nizi različnih kombinacij) (Interneti vir 4). Preverjene podatkovne zbirke (baze znanj) so prikazane v Tabeli št. 1.

Tabela 1: Pregled podatkovnih zbirk

| Podatkovna zbirka | Kratek opis |
|---|---|
| Scopus | Multidisciplinarna bibliografska zbirka s citatnim indeksom, ki jo gradi največji založnik mednarodne znanstvene literature Elsevier B.V. |
| Base | Eden najbolj obsežnih za akademske spletne vire. Od več kot 140 milijonov indeksiranih dokumentov je približno 60 % na voljo brezplačno (odprt dostop). |
| Sage | Zbirka SAGE Journals Online je namenjena iskanju strokovne in znanstvene literatureter branju člankov s področij družbenih ved in humanistike, medicine, tehnike in naravoslovja. |
| SpringerLink | Obsega dostop do približno 1900 znanstvenih in strokovnih revij ter preko 30.000 knjig različnih založb, združenih v skupini Springer Science+Business Media. Pokrivajo različna strokovna področja: pravo, poslovne vede in ekonomijo, biomedicinske, naravoslovne in tehnične vede, humanistiko, psihologijo, sociologijo itd. |
| ScienceDirect | ScienceDirect je zbirka enega največjih založnikov znanstvene literature Elsevier. Zajema bibliografske podatke z izvlečki in celotna besedila člankov z vseh področjih znanosti s poudarkom na naravoslovju, medicini in tehniki. Vsebuje več kot 16 milijonov člankov, 2500 revij, 250 revij s polnim dostopom, 39.000 knjig in 330.000 tematskih strani za pomoč raziskovalcem. |
| Nacionalni portal odprte znanosti | Dostop do zaključnih nalog vseh slovenskih fakultet. |
| ReVIS | Dostop do polnega besedila zaključnih nalog Nove univerze. |

Z namenom dosega zajema čim več dokumentov izberemo podatkovno zbirko, ki vključuje objavljene in neobjavljene vire (sivo literaturo). Siva literatura (Bailin, Grafstein, 2010) so objavljeni dokumenti, ki niso dosegljivi na knjižnem trgu in so namenjeni ožji ciljni skupini, npr. interne publikacije. Običajno gre za raziskovalno gradivo, ki ni na voljo v običajnih objavljenih virih:

- referati / zborniki konferenc,
- klinična preskušanja,
- vladni dokumenti,
- glasila, informativni listi, bilteni, brošure,
- poročila,
- ankete,
- teze…

Pri pripravi sistematičnega pregleda literature smo zaradi časovne omejitve in omejene dostopnosti elektronskih virov uporabili podatkovno zbirko ScienceDirect.

Sistematični pregled literature smo izvedli v 4 korakih in sicer:

1. korak – vnos ključnih besed v iskalnik

2. korak – identificiranje primernih člankov (branje naslova)
3. korak – identificiranje primernih člankov (branje naslova, povzetka, ključnih besed)
4. korak – primarne študije (ugotovitev dejanske vsebine članka)

Z vnosom ključnih besed in besednih zvez:

- urban
- space
- development
- urban space
- space development
- urban development
- urban space development.

Nabor zadetkov je prikazan tabelarično.

Tabela: Nabor zadetkov v podatkovni bazi ScienceDirect

| Ključna beseda / besedna zveza | Zadetkov | Besedna zveza[3] |
|---|---|---|
| Urban | 731.828 | |
| Space | >1.000.000 | |
| Development | >1.000.000 | |
| urban space | 253.927 | 11.053 |
| space development | >1.000.000 | 3.414 |
| urban development | 472.557 | 40.596 |
| urban space development | 194.248 | 57 |

Pri identifikaciji primernih člankov smo se osredotočili na članke, ki so naslovu, tekstu ali objavljenipublikaciji vsebovali besedno zvezo »urban space development«.

Število objav v obdobju

| Obdobje | Število objav | Delež |
|---|---|---|
| 1978-1982 | 1 | 1,75% |
| 1983-1987 | 1 | 1,75% |
| 1993-1997 | 2 | 3,51% |
| 2008-2012 | 4 | 7,02% |
| 2013-2017 | 16 | 28,07% |
| 2018-2022 | 33 | 57,89% |

Mesto objave

| Publikacija | Število objav | Delež |
|---|---|---|
| Pregledni članek | 1 | 1,75% |
| Raziskovalni članek | 53 | 92,98% |
| Knjiga (poglavje) | 1 | 1,75% |
| Prispevek | 1 | 1,75% |
| Ostalo | 1 | 1,75% |

[3] Iskanje po besedni zvezi

S podrobnejšim pregledom člankov:

- branje naslova;
- branje povzetka;
- ključnih besed;
- prosti dostop do celotnega besedila članka

smo nabor primernih člankov zožili na 17 člankov, ki jih prikazuje spodnja tabela.

| zap.št. | Leto | Avtor | Publikacija | Naslov | Ključne besede | Povzetek |
|---|---|---|---|---|---|---|
| 1 | 2016 | Rong Du | Frontiers of Architectural Research,Volume 5, Issue 3,2016, Pages 290-300 | Urban growth: Changes, management, and problems in large cities of Southeast China | Urban growth; Urban planning;Land use planning; SLEUTH; Megacity ;Nanjing | Compared with medium-sized cities, megacities play an increasingly important role in the rapid urbanization process in China.Owing to the expanding scale of large cities, urban sprawl leads to unsustainable practices that cause ecological, social, and environmental problems. Urban planning and land use planning are major driving forces of land use and land cover change in China. However, the goals of these two types of planning are different, and coordinating them is a challenge forlocal government decision makers. Thus, we use the SLEUTH model tosimulate the implementation scenarios of future urban growth in Nanjing in the Jiangsu province of China. Using the scientific simulation data of the model, we contrasted the alternative futures of the two planning types for local government decision makers to achieve sustainable urban planning. The objective of our study is to explore the problems and possible solutions for urban management in the context of a megacity in China. The results of our study confirm thevalue of SLEUTH, which provides extensive exploratory knowledge in evaluating the effects of possible local government decisions. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 2015 | Evgeny Shnyrenkov , Igor Pryadko, | Procedia Engineerin g,Volume 117, 2015, Pages 325-330, | The Bologna Process: Exacerbatio nof Social Competenc esamong Civil Engineering Students, | Russia's education reform; the Bologna process; training of construction engineering specialists; urban environment; housing quality; | The Russian education reform follows the Bologna process patternand seeks to get construction engineering students develop socialand professional competencies. The co-authors of the paper believe thatthe social competencies of the students of the civil engineering university must be focused on their |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | cultural competencies; professional competencies | future professional activities. The social competencies, developed by the students in the course of their studies, must help them to solve themost relevant problems of the urban environment and its development. |
| 3 | 2011 | Ziwei Zhao, QiCao, | Procedia Engineering,Volume 21, 2011, Pages 767-770, | The Development of Urban Underground Space from the Perspective of Urban Economy, | Urban undergroundspace; Urban economy | Urban underground space is an important non-renewable resource, and its value has increased in recentdecades. Economic change and development is the most fundamental motive of evolution of the urban space, it also affected urban underground spatial development in a large degree. The paper try to analysis the urban economic affection in mechanism of evolution of urban underground space. The only sustainable way that urban underground space physical pattern fit into the urban economic structure. |
| 4 | 2013 | Kwok Yan ChiJackie | Procedia EnvironmentalSciences, Volume 17, 2013, Pages 675-684 | Projecting Sustainable Living Environment for an Ageing Society: The Case of HongKong | Sustainable Living Environment; Ageing society;Active Ageing; Quality of Life;Hong Kong | In 2030, 22% of Hong Kong's total population will be aged 60 or older.In order to advocate Active Ageing1 in a qualified and sustainable environment, our research team has continuously investigated the habitable urban living environment for elderly people in Hong Kong. In 2009, we have completed a research on the practice of everyday life of an active group of elderly people. Thisresearch aimed to firstly understandhow people aged 60 or above live actively in an urban environment; and secondly, to see if they are leading a quality life in Hong Kong.With this conceptual framework in mind, we wished to relate the environmental context to the ageingsociety. We organized the findings of this research into a conceptual framework to assess the use of urban space in Hong Kong. We wished to find out whether the use of it was fit for providing a qualified life for the older people. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | We find that while Hong Kong is a<br>liveable city offering a vibrant city |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | life, it is at the same time a 'dual city' where the high spending 'nouveau riches' is gradually expelling the poorer citizens not only from the downtown area, but also from maintaining an affordablequality of living. Our findings strongly suggested that ageing is nota barrier to an active social life. In reality, poverty is the major factor that creates both helpless and hopeless feelings among the elderlypeople. In order to construct a sustainable environment which is 'growing old', the Hong Kong Government should integrate the concern of the older citizens into urban planning and design policies. The most important issue is to makethe city life more affordable to all. |
| 5 | 2021 | Robert Olszewski, Agnieszka Wendland, | Land Use Policy,Volume 109, 2021, 105614, | Digital Agora – Knowledge acquisition from spatial databases, geoinformationsociety VGI and social media data, | Spatial data mining; VGI; KDD; Social (geo)participation; Smart city; DigitalAgora, urban development | The essence of VGI (volunteered geographic information) lies not only in obtaining spatial data from residents (the classic "citizens as sensors" approach (Goodchild, 2007), but also in stimulating them to be active as far as social (geo)participation shaping the development of urban space. The contemporary challenge of the "smart city" era is the creation of a Digital Agora, which facilitates (and analytically supports) not only social debate on spatial planning, but also enabling the acquisition of spatial knowledge. The article presents the application of geoinformation technology and spatial data mining in the analysis of VGI data and knowledge acquisition for the purpose of sustainable urban development. Theaim of the article is to propose a general model of digital social debate on the participatory creation of a smart city and sustainable spatial development. This approachcan be used to collect spatial data |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | and transform them into useful |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | spatial knowledge. The article discusses two cases of using the Digital Agora model to collect andanalyze spatial data. |
| 6 | 2021 | Dongqing Han, Yacheng Song, Enqi Wang, Hua Liu, Rong Fang, | Frontiers of Architectural Research, Volume 10, Issue 1, 2021, Pages 79-91, | Multiple dimensions of urban design development from a practice perspective: A case study of an institute in Nanjing, | Urban design; Practice perspective; Multiple dimensions; Concept; Technology; Managemen t | The rapid urbanization process in China has promoted the active state of urban design practice. In the process of solving complex problems, the practical scope of urban design has gradually expanded. This paper took a design institution in Nanjing as a case study and sorted the trends in design project types and themes over the past 20 years, which presented a partial and diverse state of evolutionin urban design practice. Concept, technology and management were extracted as the three main dimensions of cognitive urban design practice development. The relative positions and relationships of different types of urban design work were interpreted through mapping analysis of these three dimensions. This study provided a foundation for the practical orientation of urban design in Chinaand a platform for communication among managers, urban design practitioners, scholars of related disciplines, and the public. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | 2017 | Abdelkader ElGarouani, David J. Mulla, Said ElGarouani, Joseph Knight, | International Journal of Sustainable Built Environment, Volume 6, Issue 1, 2017, Pages 160-169, | Analysis of urban growthand sprawl from remote sensing data:Case of Fez, Morocco, | Urban expansion;GIS; Remote sensing; Fez; Morocco | Fez is the most ancient of the imperial cities of Morocco. In Fezthe rate of population growth has been spectacular in recent times (484,300 inhabitants in 1982 and 1,129,768 in 2014). The acceleratedrate of population growth has generated a large urban sprawl in allits forms and serious environmentalproblems. In this research, we have analyzed the relationship between urbanization and land use changes and their impact on cityscape in Fezand the importance of the increase in impervious surface areas. Satellite imageries and census datahave been used to identify differentpatterns of land use change and growth of the city for the period 1984–2013. Classification and analysis of the satellite imageries were performed using Erdas imagine and ArcGIS Software. Urban sprawl in Fez was assessed over 29 years (1984–2013). The overall accuracy of land cover change maps, generated from post-classification change detection methods and evaluated using several approaches, ranged from 78% to 87%. The maps showed thatbetween 1984 and 2013 the amountof urban or developed land increased by about 121%, while rural cover by agriculture and forest decreased respectively by 11% and 3%. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 2009 | Feng Shan-Shan, Chang Jiang, Yang Bo, Dong Zhong-Shu, | Procedia Earth and Planetary Science, Volume1, Issue 1, 2009, Pages 982-988, | Re-use strategy of subsided land based on urban space ecological compensation: case study for Xuzhou mining area forexample, | subsided land; re-use; ecological compensation; Xuzhou mining area | In this paper, based on a new definition we propose for “urban space ecological compensation” from view of ecology, we summarize the space-time development law of subsided land in Xuzhou mining area, and describe the ecological degradation characters of subsided land and the present status of land-use, obtaininga conclusion that the present reclamation mode can not meet the existing conditions of subsided land, such as large subsided area and dynamic change, large volume of accumulated water, and complex landform. In addition, the standard of reclamation was changed in new reclamation regulation. Therefore, we analyze the internal relation between subsided land and urban space structure with the idea of urban space ecological compensation and try to discover the great value of ecosystem servicefunction of subsided land, which can help to realize ecological balance of urban space. At last, we put forward a strategy for re-use of subsided land based on the principleof ecological compensation, that is, “the minimal manual intervention” and “the largest ecological efficiency”, in which subsided land is regarded as a new resource that can promote urban-rural harmonious development and sustainable development in mining area. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 2016 | Wan Hashimah Wan Ismail, Juhana Turiman, | Procedia - Socialand Behavioral Sciences, Volume 222,2016, Pages 907-914, | Physical Characteristicsof Resting Places for the Homeless in Johor Bahru City Centre, | Physical characteristics; space criteria; resting place; homeless | The urban development and rising cost of living in Johor Bahru had reduced some people to live withoutany proper homes. The paper discusses the causes of the problem and the physical characteristics of their resting places. It was based on research that was conducted using three methods, namely literature review, unstructured interview and site observation. The findings suggest that the majority of the homeless were local people who tried to find jobs and were choosy in the choice of resting places. The finding of the research could be |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | used as guiding tools in designing aone-stop centre for them. |
| 10 | 2016 | XU Liquan, ZHOU Junqing, | Procedia - Socialand Behavioral Sciences, Volume 216, 2016, Pages 998-1005, | The New Town Development in Ecological Sensitive AreaBased on Resilience Thinking, | Ecological sensitive area; Resilience Thinking; feedback mechanism; indexsystem | Resilience thinking is the basis to guide the ecological sensitive area sustainable development. Resiliencethinking revolves around system changes and to ignore or resist change makes us more susceptible to damage. The research attempts toapply resilience thinking in new town development in ecological sensitive areas. In particular, the paper proposes to impose ecologicalcapacity control and projection of construction scales in the planning stage, to build an operational index system between planning and implementation, to avail the feedback mechanism in decision- making, and to ensure accurate implementation of the plan. |
| 11 | 2016 | Yiting Zhao,Kejie Wu, | Procedia Engineering,Volume 165, 2016, Pages 610-621, | Quantitative Evaluation of the Potential of Underground Space Resources in Urban Central Areas Based on Multiple Factors: A Case Study of Xicheng District, Beijing, | Quantitative Analysis; Multiple Factors;Land Units; Quantitative Evaluation | Compared with those of other areas,the conditions for the development and utilization of urban central areas are often more complex and diverse. Taking Xicheng District of Bejing as an example, this research sorts out and extracts the main factors influencing the developmentand utilization of underground space in urban central areas from the two aspects of supply and demand, explores the methods for the quantitative evaluation of the potential of underground space resources. Based on the detailed general survey and reconnaissance data on underground space by diversified data acquisition and analysis methods, the research comprehensively studies and analyzes all the factors influencing the underground |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | space resources in Xicheng District and by establishingthe classification indexes and the quantitative evaluation model, it |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | develops the quantitative evaluationof the potential of underground space resources development and utilization based on the land units, which provides certain reference forthe underground space planning in urban central areas and for the scientific and reasonable utilization of underground space resources. |
| 12 | 2011 | Shan Cao, ChiLi, | Procedia Environmental Sciences, Volume 5, 2011, Pages 199-207, | The exploration ofconcepts and methods for Low-Carbon Eco-City Planning, | Low carbon; Eco-city; Planning | The establishment of low-carbon eco-city planning in the pattern of low-carbon economic development and the low-carbon society consumption with cities as a unit can remove the bottleneck for urban development, promote sustainable urban development and provide ample opportunities for industry upgrading and transformation in cities. The paper highlights the low-carbon eco-city planning ideas and development strategies and introduces the practical exploration of the planning with the new eco- city of Tianjin as an example. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 | 2020 | Krystyna Bryś, Tadeusz Bryś, Hanna Ojrzyńska, Marderos Ara Sayegh, Arkadiusz Głogowski, | Science of TheTotal Environment, Volume 747, 2020, 141192, | Variability androle of long- wave radiation fluxes in the formation of net radiation and thermal features of grassy and bare soil active surfaces in Wrocław, | Variability; Long-wave radiation fluxes; Net radiation; Active surface; Urban area; Buffer effect | The paper examines the variability of long-wave radiation fluxes in twocontrasting types of urban active surfaces – grassy surface and surface without plants (bare soil) in Wrocław (Poland) within a 12-year period (August 2007–July 2019).<br>The study used net radiation and heat balance formulas to calculate the share of individual radiation fluxes in these balances, and then utilized the Stefan-Boltzmann formula to calculate the effective temperatures of researched surfaces.The analysis showed the temporal variability of these fluxes against the background of weather and climatic conditions and in relation to the variability of short-wave radiation fluxes. The role of long- wave radiation fluxes in forming netradiation was examined in detail to show the buffering role of vegetation surfaces regarding the variability of solar radiation fluxes and their heat effects. The mean monthly values of outgoing long- wave radiation fluxes change from 309.0 W·m−2 for bare soil, 309.8 W·m−2 for grassy surface, and 288.8 W·m−2 for downward atmospheric radiation to respectively 435.8, 425.0 and 369.4 W·m−2 in July. The coefficient of variability for long-wave radiation daily fluxes are approximately one order of magnitude lower than for the short- wave radiation. The differences between values of long-wave radiation fluxes for bare soil and grassy surfaces vary from slight negative values in winter to relatively sizable positive values during the vegetation period (March–October). The obtained results are important, as they provide empirical arguments for urban planning to extend plant areas' share in big cities as well as to introduce there a friendly environmental system of irrigation in these areas using renewable solarenergy. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | 1986 | Notes on the Contributors, | Areas of Learning Basic toLifelong Education, Pergamon, 1986, Pages v-vii, | In Advances inLifelong Education, | | |
| 15 | 2015 | Norhafizah Abdul Rahman, Shuhana Shamsuddin, Izham Ghani, | Procedia - Socialand Behavioral Sciences, Volume 170, 2015, Pages 624-632, | What Makes People Use theStreet?: Towards a Liveable Urban Environment in Kuala Lumpur City Centre, | Uses and activities; pedestrians need;public spaces; liveable urban environment | This paper examines the factors thatmake people used the street in Kuala Lumpur city centre. The study employed a mix-methodologymethod. The results suggest that theneeds of users on the street depend on various factors, such as attractions; activities and reasons for using the streets; proximity, lackof congestion; and familiarity and length of engagement with the place public space, greenery, public amenities, maintenance and freedom of action. The findings show that, in general, the factors that make people use the street are mostly similar with previous theories. However, the attributes that contribute to the factors vary for each context. |
| 16 | 2021 | Jiake Shen, Xiaolu Guo, Yuncai Wang, | Ecological Indicators, Volume 125, 2021, 107473, | Identifying andsetting the natural spaces priority based on the multi-ecosystem services capacity index, | Multi-ecosystem services; Ecosystem servicecapacity index; Natural space; Spatial priority identification; Ecosystem services mapping; Ecological network planning | The loss and fragmentation of natural spaces in rapidly urbanized areas have greatly reduced their capacity to provide multiple ecosystem services (ESs). It is of great importance to identify natural spaces with key ecological functions, which are used to construct effective and efficient ecological networks, especially in urbanized areas where natural spaces are limited. This paper individually evaluated five key ESsprovided by natural spaces in the Su-Jia-Hu area. The index evaluation results showed that the overall level of ES supply was the highest in the two types of natural space, which were lakes and forests.The results of the clustering analysis on this basis showed that the natural space priority could be divided into six grades: the first grade was the large ecological conservation area, the second and third grades were the important |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | ecological hubs, and the fourth, fifth<br>and sixth grades were the potential |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | stepping stones and structural corridors. The method based on theMESC index evaluation proposed here provided a scientific and repeatable framework for the identification and management of important natural spaces in ecological network planning and useful reference information for planners and decision makers. |
| 17 | 2017 | Lyudmila Vidiasova, Polina Kachurina, Felippe Cronemberger, | Procedia Computer Science, Volume119, 2017, Pages 269-277, | Smart Cities Prospects fromthe Results of the World Practice Expert Benchmarking, | Smart Cities; IT; innovation; benchmarking; Smart City Wheel | Smart cities involve complex sociotechnical systems which are built on the flows of an increasing amount of data coming from multiple sensors, thanks to the technology of the Internet of Things. In this context, smart cities aim to provide sustainable urban development worldwide. This paperpresents the results of world practice benchmarking for 20 smartcities and it seeks to determine the most successful cases that could be of interest for better urban development. B. Cohen's Smart City Wheel was used as the system of indicators, and expert assessment, document analysis, andstatistical methods were applied to the research. Results indicate that the cases of Songdo, Singapore, Melbourne, Bodo, Delft and Toronto got the highest marks. Also, the level of resource management, e-government infrastructure, education and safetyindicators showed a positive impacton the other smart city components. |

Z načrtovanjem in urejanjem naselij in mest se ukvarja urbanizem. Glavna vprašanja urbanizma so povezana z naravnimi danostmi prostora. Pri tem se je treba zavedati, da je naravni prostor glaven za preživetja človeka. Pri obravnavi so pomembna tudi socialna vprašanja, ki so povezana s posameznikom ali družbenimi skupinami, ter tehnična vprašanja, kot je na primer načrtovanje prometa in komunikacij. Naravne

danosti so izražene z obliko terena (relief), sestavo tal (pedologija), podnebjem (temperatura, vlaga, vetrovi ...), vodotoki (potoki, reke), jezeri in morji (nabrežja, obale) ... Zaradi

omejitev, ki veljajo pri naravnih virih, se je pri gradnji v širšem prostoru treba zavedati smiselne rabe zemljišč in drugih vplivov na naravne vire. Socialna vprašanja, ki osmišljajo določen urbani prostor, so različna. V zgodovini je bila med prvimi zagotovo izpostavljena varnost. Skozi vso zgodovino sta pomembna trgovina in delo. Pomembno pa je tudi druženje (socializacija), ki ga poznamo kot verovanje, zabavo, kulturo in ne nazadnje kot izobraževanje ...

### 6.3.2 Kvantitvaina raziskava

Združevanje urbanih funkcij narekuje urejanje določenih tehničnih ravni v naseljih. Do naselij in v njih je treba speljati poti (ceste), po katerih se vrši promet. Higiena narekuje celostne komunalne ureditve. Izhajajoč iz glavnih vprašanj urbanizma in pregledane literature smo izvedli še anketo. Izhajajoč iz teme raziskovalne naloge in pregleda literature smo se odločili, da manjši skupini anketirancev, ki prihajajo iz različnih demografskih okolij postavimo še dodatna vprašanja:

- V1 - Pridelate sadje in zelenjavo sami in v kolikšnem deležu? V kolikor ne, kje kupujete -tržnica, trgovina?
- V2 - So v kraju, kjer prebivate kulturne, izobraževalne oziroma varstvene ustanove?
- V3 - Koliko časa potrebujete za pot na/z dela z lastnim in koliko z javnim prevozom?

Anketo smo izvedli med desetimi anketiranci pri čemer smo poskrbeli, da sta oba spola enakovredno zastopana, da so anketiranci iz različnih starostnih obdobij, bivanjskih okolij in z različno izobrazbo.

Tabela: Anketiranci, ki so sodelovali v anketi

| Udeleženec: | Spol M/Ž | Starost (mlajša generacija do 30 let, srednja od 30-60 let, starejša nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) |
|---|---|---|---|---|
| **1** | Ž | 30-60 | UNI | okolica mesta |
| **2** | Ž | 30-60 | UNI | ruralno okolje |
| **3** | Ž | nad 60 | VŠ | ruralno okolje |
| **4** | Ž | 30-60 | UNI | mesto |
| **5** | M | 30-60 | DR | mesto |
| **6** | Ž | nad 60 | UNI | mesto |
| **7** | M | 30-60 | UNI | mesto |
| **8** | M | 30-60 | SŠ | ruralno okolje |
| **9** | M | 30-60 | UNI | ruralno okolje |
| **10** | Ž | 30-60 | DR | ruralno okolje |
| demografski del | | | | |

V nadaljevanju smo vse prejete odgovore obdelali in sicer smo za vsako vprašanje analizirali odgovore po skupinah spol, starost, izobrazba in kraj bivanja.

V1-T2a (spol); V1-T2b(starost); V1-T2c(izobrazba) in V1-T2d(kraj bivanja) V2-T2a (spol); V2-T2b(starost); V2-T2c(izobrazba) in V2-T2d(kraj bivanja) V3-T2a (spol); V3-T2b(starost); V3-T2c(izobrazba) in V3-T2d(kraj bivanja)

Podrobnejša analiza odgovorov po posameznih kategorijah je v prilogi.

Iz prejetih odgovorov, ki so jih podali anketiranci lahko izvedemo naslednje zaključke:

- večina anketirancev je starosti med 30-60 let, delno oskrbnih. V ruralnem okolju so samooskrbni, višja je izobrazba, več kupujejo v trgovini.
- vsi imajo v kraju vsaj šolo in vrtec, v centru je na voljo vsa infrastruktura. Anketiranci z višjo izobrazbo imajo na voljo več tovrstnih ustanov. Ena anketiranka, ki ima najvišjo izobrazbo izstopa, ker živi v ruralnem okolju brez infrastrukture.
- anketiranci z višjo izobrazbo za pot na delo in z dela potrebujejo več časa, stanujoča v centru prav tako (dva živita v velemestu, en se vozi v drugo mesto). Noben izmed njih ne uporablja javnega prevoza zaradi nefleksibilnost voznih redov in daljšega časa potovanja.

### 6.3.3 Kvalitativna raziskava

S sistematičnim pregledom literature in izvedeno anketo smo prišli do določenih odgovorov, pri čemersmo za pridobitev odgovorov na:

1. Hrana, ki jo uživam je zdrava.
2. Ali bi se zaradi boljše socialne infrastrukture bili pripravljeni preseliti v drug kraj?
3. 90 minut vožnje za prihod na in z dela je sprejemljivo.

Intervjuvancem smo zastavili naslednja vprašanja.

*Vaš spol*

*Ž- ženski*

*M-moški*

*Vaša starost*

*do 30 let*

*od 30 - 60 let*

*60 let ali več*

*Dosežena izobrazba*

*SŠ*

*VŠ*

*UNI*

*Kraj bivanja*

*center*

*okolica mesta*

*Ruralno okolje*

*Za merjenje stališča smo uporabili Likertovo lestvic:(1) sploh se ne strinjam; (2) ne strinjam se; (3) nitise ne strinjam niti se strinjam;(4) strinjam se; (5) popolnoma se strinjam.*

Dobljenih odgovorov nismo analizirali po spolu, starosti, izobrazbi in kraju bivanja, temveč smoupoštevali povprečje vseh prejetih odgovorov.

| Vprašanje | | Povprečna ocena (x) | Predpostavka |
|---|---|---|---|
| V1 | Hrana, ki jo uživam je zdrava. | 3,7 | Ker pretežni del intervjuvancev prihaja iz okolice mesta in ruralnega okolja na podlagi ocene sklepamo, da si hrano delno sami pridelajo. Intervjuvanci iz mesta se oskrbujejo v trgovinah in zaupajo prodajalcu. |
| V2 | Ali bi se zaradi boljše socialne infrastrukture bili pripravljeni preseliti v drugkraj? | 2,9 | Ocena, ki je nižja od povprečja je verjetno posledica tega, da večina intervjuvancev živi v centru in okolici mesta, kjer imajo vso potrebno infrastrukturo. Za zadovoljitev občasnih potreb (kulturne, športne ustanove in prireditve) sorazdalje med kraji majhne zato ne vplivajo na odločitev za selitev v drug kraj. |
| V3 | 90 minut vožnje za prihodna in z dela je sprejemljivo. | 2,6 | Nizka ocena je posledica tega, ker večina intervjuvancev živi v ali okolici mesta. Čas vožnje iz ruralnega okolja, kjer živijo 3 intervjuvanci je zaradi centralizacije nekaj samoumevnega kar se odraža z nekaj višjo oceno. |

Iz prejetih odgovorov, ki so jih podali intervjuvanci lahko izvedemo naslednje zaključke:

- v ruralnem okolju so delno samooskrbni, prebivalci v mestu zaupajo prodajalcem;
- nimajo potrebe, da bi se zaradi zadovoljitve občasnih potreb (kulturne, športne prireditve)odločili za selitev v drug kraj.
- čas vožnje, potreben za prihod na in z dela iz ruralnega okolja, kjer živijo 3 intervjuvanci je zaradicentralizacije nekaj samoumevnega kar se odraža z nekaj višjo oceno.

### 6.3.4 Sklep

Na podlagi sistematičnega pregleda literature in izvedene ankete in intervjujev lahko zaključimo, da:

- je večina v starosti med 30-60 let, delno oskrbnih. V ruralnem okolju so samooskrbni, višja je izobrazba, več kupujejo v trgovini.
- vsi imajo v kraju vsaj šolo in vrtec, v centru je na voljo vsa infrastruktura. Sodelujoči z višjo izobrazbo imajo na voljo več tovrstnih ustanov. Sodelujoča, ki ima najvišjo izobrazbo izstopa, ker živi v ruralnem okolju brez infrastrukture. Skupno jim je to, da se zaradi zadovoljitve občasnih potreb (kulturne, športne prireditve) ne bi odločili za selitev v drug kraj.
- sodelujoči z višjo izobrazbo za pot na delo in z dela potrebujejo več časa, stanujoča v centru pravtako (dva živita v velemestu, en se vozi v drugo mesto). Noben izmed njih ne uporablja javnega prevoza zaradi nefleksibilnost voznih redov in daljšega časa potovanja.
- čas vožnje, potreben za prihod na in z dela iz ruralnega okolja je zaradi centralizacije nekaj samoumevnega, kar se odraža z nekaj višjo oceno.

Z zgornjimi zaključki lahko pritrdimo ugotovitvam, da je razumevanje teh pojavov ključnega pomena za oblikovalce lokalnih politik (Sandoval-Felix idr., (2021), kajti uravnotežen regionalni razvoj je predpogoj za trajnostno gospodarsko rast.

Priloge

**VPRAŠANJE 1:** Pridelate sadje in zelenjavo sami in v kolikšnem deležu? V kolikor ne, kje kupujete - tržnica, trgovina?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|
| **1** | | | | Pridela 40% zelenjave in 20% sadja. Preostalo nakupuje na tržnici in kmetu, ki zelenjavo pripelje na dom. | Večina moških anketirancev, sadje in zelenjavo nakupujeta v trgovini | | Anketiranke so delno samooskrbne, anketiranci nakupe opravijo v trgovini. |
| **2** | | | | Pridela 30% zelenjave , preostalo nakupi v trgovini. | | | |
| **3** | | | | Pridela vso zelenjavo in sadje. | | | |
| **4** | | | | Vse nakupi v trgovini. | | | |
| **5** | | | | Vse nakupi v trgovini. | | | |
| **6** | | | | Pridela manjši del zelenjave, preostalo nakupi v trgovini. | Večina ženskih anketirank, sadje in zelenjavo pridelujeta doma in le manjš del nakupita v trgovini. | | |
| **7** | | | | Vse nakupi v trgovini. | | | |
| **8** | | | | Pridela vso zelenjavo in sadje. | | | |
| **8** | | | | Vse nakupi v trgovini. | | | |
| **10** | | | | Pridela vso zelenjavo in sadje. | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** So v kraju, kjer prebivate kulturne, izobraževalne oziroma varstvene ustanove?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|
| **1** | | | | V kraju so šola, kulturni dom, vrtec, lekarna | Večina moških anketirancev stanuje v kraju, kjer sta vsaj šola in vrtec | | Anketiranci stanujejo v kraju, kjer so vsaj šola in vrtec, anketiranke imajo vse ustanove, le ena anketiranka nima v kraju tovrstne ustanove. |
| **2** | | | | V kraju sta šola in vrtec | | | |
| **3** | | | | V kraju sta šola in vrtec | | | |
| **4** | | | | V kraju so vse ustanove. | | | |
| **5** | | | | V kraju so vse ustanove. | | | |
| **6** | | | | V kraju so vse ustanove. | Večina ženskih anketirank, stanuje v kraju, kjer so vsaj šola in vrtec, deloma vse ustanove. | | |
| **7** | | | | V kraju so vse ustanove. | | | |
| **8** | | | | V kraju sta šola in vrtec | | | |
| **8** | | | | V kraju sta šola in vrtec | | | |
| **10** | | | | V kraju ni tovrstnih ustanov | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** Koliko časa potrebujete za pot na/z dela z lastnim in koliko z javnim prevozom?

**Primer: SPOL**

| Udeleženec: | Spol Ž | Spol M | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|
| **1** | | | | Za pot na dan porabi 20 min z OV. Javnega prevoza ne uporablja. | Večina moških anketirancev za pot na delo in z dela potrebuje vsaj 30 minut, dva vsaj 120 min. | | Večina anketirancev za pot na delo in z dela potrebujejo 90 min, javnega prevoza ne uporabljajo, en anketiranec 3x tedensko uporablja letalski prevoz. |
| **2** | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| **3** | | | | Upokojena, uporablja OV. | | | |
| **4** | | | | Za pot na dan porabi 240 min, javnega prevoza ne uporablja. | | | |
| **5** | | | | Za pot na dan porabi 120 min, 3x tedensko uporablja letalski prevoz. | | | |
| **6** | | | | Upokojena, uporablja OV. | Večina ženskih anketirank, za pot na in z dela potrebuje vsaj 20 min, prevladuje 90 min. | | |
| **7** | | | | Za pot na dan porabi 120 min, nima možnosti uporabe javnega prevoza. | | | |
| **8** | | | | Za pot na dan porabi 30 min. | | | |
| **8** | | | | Za pot na dan porabi 30 min, ne uporablja javnega prevoza. | | | |
| **10** | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 1:** Pridelate sadje in zelenjavo sami in v kolikšnem deležu? V kolikor ne, kje kupujete - tržnica, trgovina?

**Primer: STAROST**

| Udeleženec: | 30-60 let | nad 60 let | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|
| **1** | | | | Pridela 40% zelenjave in 20% sadja. Preostalo nakupuje na tržnici in kmetu, ki zelenjavo pripelje na dom. | Anketiranca stara nad 60 let delno nakupita v trgovini oziroma pridelata doma. | | Anketiranci stari med 30-60 let so delno samooskrbni, večina jih nakupuje v trgovini. |
| **2** | | | | Pridela 30% zelenjave , preostalo nakupi v trgovini. | | | |
| **3** | | | | Pridela vso zelenjavo in sadje. | | | |
| **4** | | | | Vse nakupi v trgovini. | | | |
| **5** | | | | Vse nakupi v trgovini. | | | |
| **6** | | | | Pridela manjši del zelenjave, preostalo nakupi v trgovini. | Anketiranci stari med 30-60 let so delno samooskrbni oz. vse nakupijo v trgovini. | | |
| **7** | | | | Vse nakupi v trgovini. | | | |
| **8** | | | | Pridela vso zelenjavo in sadje. | | | |
| **8** | | | | Vse nakupi v trgovini. | | | |
| **10** | | | | Pridela vso zelenjavo in sadje. | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** So v kraju, kjer prebivate kulturne, izobraževalne oziroma varstvene ustanove?

**Primer: STAROST**

| Udeleženec: | 30-60 let | nad 60 let | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|
| **1** | | | | V kraju so šola, kulturni dom, vrtec, lekarna | Anketiranca stara nad 60 let imata v kraju vsaj šolo in vrtec | | Anketiranci stari med 30-60 let, razen ene anketiranke imajo v kraju vsaj šolo in vrtec. |
| **2** | | | | V kraju sta šola in vrtec | | | |
| **3** | | | | V kraju sta šola in vrtec | | | |
| **4** | | | | V kraju so vse ustanove. | | | |
| **5** | | | | V kraju so vse ustanove. | | | |
| **6** | | | | V kraju so vse ustanove. | Anketiranci stari med 30-60 let, razen ene anketiranke, imajo v kraju vsaj šolo in vrtec, večina vse ustanove | | |
| **7** | | | | V kraju so vse ustanove. | | | |
| **8** | | | | V kraju sta šola in vrtec | | | |
| **8** | | | | V kraju sta šola in vrtec | | | |
| **10** | | | | V kraju ni tovrstnih ustanov | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** Koliko časa potrebujete za pot na/z dela z lastnim in koliko z javnim prevozom?

**Primer: STAROST**

| Udeleženec: | 30-60 let | nad 60 let | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|
| **1** | | | | Za pot na dan porabi 20 min z OV. Javnega prevoza ne uporablja. | Obe anketiranki stari nad 60 let sta upokojeni, za prevoz uporabljata OV. | | Anketiranci stari med 30-60 let za prevoz na delo in z dela porabijo vsaj 30 min. |
| **2** | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| **3** | | | | Upokojena, uporablja OV. | | | |
| **4** | | | | Za pot na dan porabi 240 min, javnega prevoza ne uporablja. | | | |
| **5** | | | | Za pot na dan porabi 120 min, 3x tedensko uporablja letalski prevoz. | | | |
| **6** | | | | Upokojena, uporablja OV. | Anketiranci stari med 30-60 let za prevoz na delo in z dela delno porabijo vsaj 30 minut, delno 90 minut. Javnega prevoza ne uporabljajo razen anketiranca, ki uporablja letalski prevoz. | | |
| **7** | | | | Za pot na dan porabi 120 min, nima možnosti uporabe javnega prevoza. | | | |
| **8** | | | | Za pot na dan porabi 30 min. | | | |
| **8** | | | | Za pot na dan porabi 30 min, ne uporablja javnega prevoza. | | | |
| **10** | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| demografski del | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 1:** Pridelate sadje in zelenjavo sami in v kolikšnem deležu? V kolikor ne, kje kupujete - tržnica, trgovina?

**Primer: IZOBRAZBA**

| Udeleženec: | SŠ | VŠ | UNI | DR | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|---|
| **1** | | | | | | Pridela 40% zelenjave in 20% sadja. Preostalo nakupuje na tržnici in kmetu, ki zelenjavo pripelje na dom. | Anketiranka vso zelenjavo pridela sama | | Anketiranci z višjo izobrazbo zelenjavo in sadje nakupujejo v trgovini. |
| **2** | | | | | | Pridela 30% zelenjave , preostalo nakupi v trgovini. | Anketiranci z UNI izobrazbo večinoma nakupujejo v trgovini | | |
| **3** | | | | | | Pridela vso zelenjavo in sadje. | | | |
| **4** | | | | | | Vse nakupi v trgovini. | | | |
| **5** | | | | | | Vse nakupi v trgovini. | | | |
| **6** | | | | | | Pridela manjši del zelenjave, preostalo nakupi v trgovini. | | | |
| **7** | | | | | | Vse nakupi v trgovini. | | | |
| **8** | | | | | | Pridela vso zelenjavo in sadje. | Anketiranec z VŠ izobrazbo je samooskrben | | |
| **8** | | | | | | Vse nakupi v trgovini. | Anketiranca z DR delno pridelata oz kupita v trgovini. | | |
| **10** | | | | | | Pridela vso zelenjavo in sadje. | | | |
| demografski del | | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** So v kraju, kjer prebivate kulturne, izobraževalne oziroma varstvene ustanove?

**Primer: IZOBRAZBA**

| Udeleženec: | SŠ | VŠ | UNI | DR | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|---|
| **1** | | | | | | V kraju so šola, kulturni dom, vrtec, lekarna | Anketiranka ima v kraju vsaj šolo in vrtec | | Anketiranci z višjo izobrazbo imajo v kraju vse ustanove. |
| **2** | | | | | | V kraju sta šola in vrtec | Anketiranci z UNI izobrazbo imajo večinoma vse ustanove | | |
| **3** | | | | | | V kraju sta šola in vrtec | | | |
| **4** | | | | | | V kraju so vse ustanove. | | | |
| **5** | | | | | | V kraju so vse ustanove. | | | |
| **6** | | | | | | V kraju so vse ustanove. | | | |
| **7** | | | | | | V kraju so vse ustanove. | | | |
| **8** | | | | | | V kraju sta šola in vrtec | Anketiranec z VŠ izobrazbo ima v kraju šolo in vrtec | | |
| **8** | | | | | | V kraju sta šola in vrtec | Anketiranca z DR imata vse ustanove oz. nobene. | | |
| **10** | | | | | | V kraju ni tovrstnih ustanov | | | |
| demografski del | | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** Koliko časa potrebujete za pot na/z dela z lastnim in koliko z javnim prevozom?

**Primer: IZOBRAZBA**

| Udeleženec: | SŠ | VŠ | UNI | DR | | V3 | V3 | | V3 |
|---|---|---|---|---|---|---|---|---|---|
| **1** | | | | | | Za pot na dan porabi 20 min z OV. Javnega prevoza ne uporablja. | Anketiranka uporablja OV. | | Anketiranci z višjo izobrazbo porabijo več časa za vožnjo na in z dela. Javnega prevoza ne uporabljajo. |
| **2** | | | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | Anketiranci z UNI izobrazbo večinoma porabijo vsaj 90 min. | | |
| **3** | | | | | | Upokojena, uporablja OV. | | | |
| **4** | | | | | | Za pot na dan porabi 240 min, javnega prevoza ne uporablja. | | | |
| **5** | | | | | | Za pot na dan porabi 120 min, 3x tedensko uporablja letalski prevoz. | | | |
| **6** | | | | | | Upokojena, uporablja OV. | | | |
| **7** | | | | | | Za pot na dan porabi 120 min, nima možnosti uporabe javnega prevoza. | | | |
| **8** | | | | | | Za pot na dan porabi 30 min. | Anketiranec z VŠ izobrazbo porabi vsaj 30 min. | | |
| **8** | | | | | | Za pot na dan porabi 30 min, ne uporablja javnega prevoza. | Anketiranca z DR porabita vsaj 90 min. | | |
| **10** | | | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| demografski del | | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 1:** Pridelate sadje in zelenjavo sami in v kolikšnem deležu? V kolikor ne, kje kupujete - tržnica, trgovina?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| **1** | | | | | Pridela 40% zelenjave in 20% sadja. Preostalo nakupuje na tržnici in kmetu, ki zelenjavo pripelje na dom. | Anketiranka iz okolice mesta delno sama pridela zelenjavo in sadje | | Anketiranci iz ruralnega dela sami pridelujejo hrano in zelenjavo, stanujoči v mestu jo kupujejo. |
| **2** | | | | | Pridela 30% zelenjave , preostalo nakupi v trgovini. | Večina anketirancev iz ruralnega okolja sama pridela zelenjavo in hrano, le manjšoi del jih jo kupuje. | | |
| **3** | | | | | Pridela vso zelenjavo in sadje. | | | |
| **4** | | | | | Vse nakupi v trgovini. | | | |
| **5** | | | | | Vse nakupi v trgovini. | | | |
| **6** | | | | | Pridela manjši del zelenjave, preostalo nakupi v trgovini. | | | |
| **7** | | | | | Vse nakupi v trgovini. | Večina anketirancev iz mesta kupuje sadje in zelenjavo. | | |
| **8** | | | | | Pridela vso zelenjavo in sadje. | | | |
| **8** | | | | | Vse nakupi v trgovini. | | | |
| **10** | | | | | Pridela vso zelenjavo in sadje. | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 2:** So v kraju, kjer prebivate kulturne, izobraževalne oziroma varstvene ustanove?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | | V2 | V2 | | V2 |
|---|---|---|---|---|---|---|---|---|
| **1** | | | | | V kraju so šola, kulturni dom, vrtec, lekarna | Anketiranka ima v kraju vse ustanove. | | Anketirancem, ki zivijo v centru imajo vso infrastrukturo, v ruralnem okolju vsaj šolo in vrtec. |
| **2** | | | | | V kraju sta šola in vrtec | Anketiranci, ki zivijo v ruralnem okolju imajo v kraju vsaj šolo in vrtec. | | |
| **3** | | | | | V kraju sta šola in vrtec | | | |
| **4** | | | | | V kraju so vse ustanove. | | | |
| **5** | | | | | V kraju so vse ustanove. | | | |
| **6** | | | | | V kraju so vse ustanove. | | | |
| **7** | | | | | V kraju so vse ustanove. | Anketiranci, ki živijo v centru imajo vse ustanove | | |
| **8** | | | | | V kraju sta šola in vrtec | | | |
| **8** | | | | | V kraju sta šola in vrtec | | | |
| **10** | | | | | V kraju ni tovrstnih ustanov | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

**VPRAŠANJE 3:** Koliko časa potrebujete za pot na/z dela z lastnim in koliko z javnim prevozom?

**Primer: KRAJ BIVANJA**

| Udeleženec: | center | okolica mesta | ruralno okolje | | V1 | V1 | | V1 |
|---|---|---|---|---|---|---|---|---|
| **1** | | | | | Za pot na dan porabi 20 min z OV. Javnega prevoza ne uporablja. | Anketiranka iz okolice mesta na dan porabi 20 min. | | Anketiranci za pot na delo in z dela porabijo vsaj 30 min. Zaradi specifike dveh, ki zivita v velemestu in enega, ki se vozi v drugo mesto znaša njihov povprečni čas 120 min. Anketiranci ne uporabljajo javnega prevoza. |
| **2** | | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | Anketiranci iz ruralnega okokja za pot na delo in z dela porabijo vsaj 30 min. | | |
| **3** | | | | | Upokojena, uporablja OV. | | | |
| **4** | | | | | Za pot na dan porabi 240 min, javnega prevoza ne uporablja. | | | |
| **5** | | | | | Za pot na dan porabi 120 min, 3x tedensko uporablja letalski prevoz. | | | |
| **6** | | | | | Upokojena, uporablja OV. | | | |
| **7** | | | | | Za pot na dan porabi 120 min, nima možnosti uporabe javnega prevoza. | Anketiranci, ki zivijo c centru za pot na delo in z dela porabijo vsaj 120 min. Razlaga - dva zivita v velemestu, en se voz v drugo mesto. | | |
| **8** | | | | | Za pot na dan porabi 30 min. | | | |
| **8** | | | | | Za pot na dan porabi 30 min, ne uporablja javnega prevoza. | | | |
| **10** | | | | | Za pot na dan porabi 90 min, nima možnosti uporabe javnega prevoza. | | | |
| demografski del | | | | | Združevanje odgovorov | Združevanje odgovorov | | Sklep in obrazložitev |

VPRAŠANJA: V1 Hrana, ki jo uživam je zdrava

V2 Ali bi se zaradi boljše socialne infrastrukture bili pripravljeni preseliti v drug kraj?

V3 90 minut vožnje za prihod na in z dela je sprejemljivo.

| | | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Spol | | | | | | | | | | | |
| | Ž- ženski | x | | x | x | | | | x | x | |
| | M-moški | | x | | | x | x | x | | | x |
| Starost | | | | | | | | | | | |
| | do 30 let | | x | | | x | | | x | | |
| | od 30 - 60 let | x | | | | | | x | | x | x |
| | 60 let ali več | | | x | x | | x | | | | |
| Izobrazba | | | | | | | | | | | |
| | SŠ | | | | x | | | x | | | |
| | VŠ | x | | | | | | | | | |
| | UNI | | x | x | | x | x | | x | x | x |
| Kraj bivanja | | | | | | | | | | | |
| | center | x | | x | | | | x | | | |
| | okolica mesta | | x | | | x | | | x | x | |
| | Ruralno okolje | | | | x | | x | | | | x |
| Vprašanja | | | | | | | | | | | |
| | V1 | 2 | 4 | 4 | 5 | 3 | 4 | 3 | 4 | 3 | 5 |
| | V2 | 2 | 3 | 2 | 4 | 4 | 3 | 1 | 3 | 3 | 4 |
| | V3 | 1 | 2 | 3 | 3 | 2 | 4 | 1 | 3 | 3 | 4 |

Likertova lestvica:1 sploh se ne strinjam; 2 ne strinjam se; 3 niti se strinjam niti se strinjam; 4 se strinjam; 5 poponoma sestrinjam

| Vprašanja | Spol M/Ž | Starost (mlajša generacija do 30 let, srednja od 30-60 let, starejša nad 60 let) | Izobrazba (OŠ, SŠ, F) | Kraj bivanja (center, okolica mesta, ruralno okolje) | | Sklep |
|---|---|---|---|---|---|---|
| V1 | Anketiranke so delno samooskrbne, anketiranci nakupe opracijo v trgovini. | Anketiranci stari med 30-60 let so delno samooskrbni, večina jih nakupuje v trgovini. | Anketiranci z višjo izobrazbo zelenjavo in sadje nakupujejo v trgovini. | Anketiranci iz ruralnega dela sami pridelujejo hrano in zelenjavo, stanujoči v mestu jo kupujejo. | | Večina anketirancev je starosti med 30-l60 let, so delno oskrbni. V ruralnem okolju so samooskrbni, višja je izobrazba, več kupujejo v trgovini. |
| **V2** | Anketiranci stanujejo v kraju, kjer so vsaj šola in vrtec, anketiranke imajo vse ustanove, le ena anketiranka nima v kraju tovrstne ustanove. | Anketiranci stari med 30-60 let, razen ene anketiranke imajo v kraju vsaj šolo in vrtec. | Anketiranci z višjo izobrazbo imajo v kraju vse ustanove. | Anketirancem, ki zivijo v centru imajo vso infrastrukturo, v ruralnem okolju vsaj šolo in vrtec. | | Ena anketiranka izstopa. Vsi imajo v kraju vsaj šolo in vrtec, v centru je na voljo vsa infrastruktura. Anketiranci z višjo izobrazbo imajo na voljo več tovrstnih ustanov. |
| **V3** | Večina anketirancev za pot na delo in z dela potrebujejo 90 min, javnega prevoza ne uporabljajo, en anketiranec 3x tedensko uporablja letalski prevoz. | Anketiranci stari med 30-60 let za prevoz na delo in z dela porabijo vsaj 30 min. | Anketiranci z višjo izobrazbo porabijo več časa za vožnjo na in z dela. Javnega prevoza ne uporabljajo. | Anketiranci za pot na delo in z dela porabijo vsaj 30 min. Zaradi specifike dveh, ki zivita v velemestu in enega, ki se vozi v drugo mesto znaša njihov povprečni čas 120 min. Anketiranci ne uporabljajo javnega prevoza. | | Anketiranci z višjo izobrazbo za pot na delo in z dela potrebujejo več časa, stanujoču v centru prav tako (dva živita v velemestu, en se vozi v drugo mesto). Noben ne uporablja javnega prevoza - nefleksibilnost voznih redov. Čas potovanja. |
| demografski del | | | | | | Združevanje odgovorov |

# 7 Sklep

Človeštvo je v središču razumevanja koncepta trajnosti, vendar je še vedno malo pozornosti namenjene opredelitvi pomena družbene infrastrukture skozi grajeno okolje (Dempsey idr., 2009). Primanjkuje teoretičnih in empiričnih študij o družbeni vzdržnosti. Literatura razkriva, da je bilo »socialno« pozno vključeno v razprave o trajnostnem razvoju (Eizenberg in Jabareen, 2017). Strinjajo se, da bodo brez socialno usmerjenih praks spodkopana prizadevanja za doseganje trajnosti, saj je v praksi in teoriji preveč vrzeli. Eizenberg in Jabareenu (2017) predlaga celovit konceptualni okvir družbene trajnosti, ki ga sestavljajo medsebojno povezani koncepti družbeno usmerjenih praks, kjer ima vsak koncept v okviru značilno funkcijo in vključuje glavne družbene vidike.

Colantonio (2010) vzpostavlja družbeno vzdržnost kot pogoj in proces, ki izboljšuje kakovost življenja skupnosti. Drugi avtorji povezujejo družbeno vzdržnost z ustrezno razporeditvijo kakovosti življenja v sedanjosti in prihodnosti (Valdes-Vasquez, Klotz, 2013; Mostafa, El-Gohary, 2014). Polese in Stren (2000) opredeljujeta družbeno trajnost kot razvoj, ki je združljiv s harmoničnim razvojem civilne družbe, ki spodbuja okolje, ki spodbuja združljivo sobivanje kulturno in socialno raznolikih skupin, hkrati pa spodbuja družbeno integracijo z izboljšanjem kakovosti življenje za vse segmente prebivalstva. Raziskovalci vidijo socialno infrastrukturo kot pomemben člen, ki pravzaprav odpira možnosti za trajnostni družbeni razvoj (Van de Walle, 2002; Mostafa, El-Gohary, 2014). Polese in Stren (2000) opredeljujeta družbeno vzdržnost kot »razvoj, ki je združljiv s harmoničnim razvojem civilne družbe, spodbujanje okolja, ki spodbuja združljivo sobivanje kulturno in socialno raznolikih skupin, hkrati pa spodbuja družbeno integracijo z izboljšanjem kakovosti. življenja za vse segmente prebivalstva (str. 229).«

Eizenberg in Jabareen (2017) navajata, da so fizični vidiki človeških prostorov, tako zdaj kot v prihodnosti, ključni za doseganje družbene trajnosti, blažitev okoljskega tveganja ter izboljšanje kakovosti življenja in blaginje ljudi. Trajnostni človeški prostori obravnavajo vprašanje narave želenih fizičnih prostorov, prostorov, ki obravnavajo družbena vprašanja v širšem trajnostnem okviru. Vprašanje urbane oblike je ključnega pomena za doseganje urbane trajnosti in obvladovanja tveganj. Kljub temu se zdi, da obstaja temeljno skupno razumevanje tega, kaj je družbena vzdržnost, in kot alternativa za bolj specifične ukrepe in kazalnike je predlagan niz ključnih tem (socialni kapital, človeški kapital in kakovost življenja).

Trajnostni družbeni razvoj torej izhaja iz kakovostno razvite družbene infrastrukture, ki je ekonomsko vzdržna, družbeno sprejemljiva za vse generacije in je njen razvoj usmerjen medkulturno, okolju prijazno in ekološko (zdravo okolje). Na tej podlagi trajnostni družbeni razvoj zadovoljuje vse potrebe uporabnikov, kar vodi v njihovo zadovoljstvo, srečo, varnost in zdravje, kakovost življenja.

**Zahvala:**

**Ta študija je bila delno financirana s strani Javne agencije za raziskovalno dejavnost Republike Slovenije skozi projekt: Vrednotenje trajnostnega razvoja urbanega prostora skozi parametre razvoja socialne infrastrukture in življenjskega zadovoljstva; št.**

**projekta J5-3112.**

# 8 Literatura:


Adriaanse, C.C.M., (2007). Measuring residential satisfaction: a residential environmental satisfactionscale (RESS), *Journal of Housing Build Environment*, Vol. 22, pp. 287 (2007). https://doi.org/10.1007/s10901-007-9082-9

Ame´rigo, M. and Aragone´s, J. I., (1997). A theoretical and methodological approach to the study of residential satisfaction. *Journal of Environment Psychology*, Vol. 17 No. 1, pp. 47-57. https://doi.org/10.1006/jevp.1996.0038

Alan Bailin, A., Grafstein, A. (2010). The dissemination of research, Editor(s): Alan Bailin, Ann Grafstein, In Chandos Information Professional Series, The Critical Assessment of Research, Chandos Publishing, 2010, pp. 63-84.

Bardo J.W. and Dokmeci, V. (1992). Modernization, traditionalization and the changing structure of community satisfaction in two-sub-communities in Istanbul, Turkey: A Procrustean' Analysis., *Genetic,Social and General Psychology Monographs*, Vol. 118 No. 3, pp. 271-293.

Baumeister, R. F. and Leary, M. R. (1995). The need to belong: Desire for interpersonal attachementas a fundamental human motivation, *Psychological Bulletin*, Vol. 117 No. 3, pp. 497-529, DOI: 10.1037/0033-2909.117.3.497.

Behnam, N. A. (2017). *Review on Sustainable Building (Green Building)*. MPRA, Munich PersonalRePEc Arhive, Paper No. 76584. https://mpra.ub.uni-muenchen.de/76584/, pridobljeno 1.20.2020.

Berry, W. (2011). *The art of the commonplace: The agrarian essays*, Berkeley: Counterpoint.

Bogataj, D., Bogataj, M. (2020). NPV approach to material requirements planning theory : a 50-yearreview of these research achievements. International Journal of Production Research, vol. 57, 15/16, pp. 5137-5153, doi: 10.1080/00207543.2018.1524167.

Boge, K. and Temeljotov Salaj, A. (2017). Practice vs theory: short-term financials trumps long-term value creation, *Journal of Corporate Real Estate*, Vol. 19 No. 3, pp. 186-204. doi: https://doi.org/10.1108/JCRE-06-2016-0022

Boyd, T., Kimmet, P. (2006). *The Triple Bottom Line Approach to Property Performance Evaluation*; School of Construction, Management and Property. Queensland University of Technology, Brisbane, Australia.

Brown, D., Dillard, J., Marshall, R.S. (2006). *Triple Bottom Line: A Business Metaphor for a Social Construct*. School of Business Administration, Portland State University, Portland, OR, USA.

Cespedes-Lopez, M., F., Mora-Garcia, R.T., Perez-Sanchez, V. R., Perez-Sanchez, J.C. (2019). Meta- Analysis of Price Premiums in Housing with Energy Performance Certificates (EPC). Sustainability, 11(22), 6306; https://doi.org/10.3390/su11226303

Chan, E., Freistfeld, C., and Anzoldo, A.V. (2016). Social infrastructure – The regeneration of somerstown, *Social Infrastructure*, pp. 33-58, https://www.academia.edu/28011598/Social_Infrastructure_The_Regeneration_of_S

omers_Town

Ciora, C., Angel, I., Maier, G. (2016). Is the higher value of green buildings reflected in current valuationpractices? *Accounting and Management Information System*, 15 (1), 58–71.

Colantonio, A. (2010. Urban Social Sustainability Themes and Assessment Methods. Proceedings ofthe Institution of Civil Engineers, *Urban Design and Planning*, Vol. 163 No. 2, pp. 79-88.

Dempsey, N., Bramley, G., Power, S. and Brown, C. (2009). The social dimension of sustainable development: Defining urban social sustainability, *Sustainable Development*, Vol. 19 No. 5, pp. 289- 300.

Denzin, N.K., Lincoln, Y. (2000). *Handbook of qualitative inquiry*. Thousand Oaks, CA:

Sage. Diener, E. (2000). Subjective well-being: The science of happiness and a

proposal for a national index.
*American Psychologist,* Vol. 55 No 1, pp. 34-43.

Diener, E. S., Eunkook, M., Lukas, R. E. and Smith, H. L. (1999). Subjective well-being: Three decadesof progress. *Psychological Bulletin*, Vol. 125 No. 2, pp. 276-302.

Du, P., Wood, A., Ditchman, N., Stephans, B. (2017). Life Satisfaction od Downtown High-Rise vs. Suburban Low-Rise Living: A Chicago Case Study*. Sustainability*, 9, 1052; doi:10.3390/su9061052

Eizenberg, E. and Jabareen, Z. (2017). Social Sustainability: A New Conceptual Framework,
*Sustainability*, Vol. 9 No. 1, pp. 68-82, https://doi.org/10.3390/su9010068

Engle, M. and Altschuld, J. W. (2014). *Needs assessment: The perspective from the public sector*. In J.
W. Altschuld & R. Watkins (Eds.), Needs assessment: Trends and a view toward the future. Newdirections for Evaluation (pp. 33–45). Hoboken, NJ: Wiley.

Faure, E., Arushanyan, Y., Ekener, E., Miliutenko, S., & Finnveden, G. (2017). Methods for assessing scenario from a sustainability perspective, *European Journal of Futures Research*, Vol. 5 No. 7, pp. 1-20.

Fedrizzi, R.S., Morri, G., Pavesi, A.S., Soffietti, F., Verani, E. (2020). Uno strumento per la creazione di valore nella. realizzazione di edifici sostenibili: La certificazione LEED. *Territorio*, 2, pp. 37–47.

Fornata, F.; Bonaiuto, M.; Bonnes, M. (2010). Cross-Validation of Abbreviated Perceived Residential Environment. Quality (PREQ) and Neighborhood Attachment (NA) Indicators. *Environ. Behav*. 42, pp.171–196.

Frolova, E.V., Vinichenko, M.V., Kirillov, A.V., Rogach, O.V. and Kabanova E.E. (2016). Development of Social Infrastructure in the Management Practice of Local Authorities: Rends and Factors. *International Journal of Environmental $ Science Education*, Vol. 11 No.15, pp. 7421-7430.

Gazzola, P. and Querci, E. (2017). The Connection Between the Quality of Life and Sustainable Ecological Development, *European Scientific Journal*, pp. 361-375.

Ghahramanpouri, A., Lamit, H. and Sedaghatnia, S. (2013). Urban Socila Sustainability Trends in Research Literature, *Asian Social Science*, Vol. 9 No. 4, pp. 185-193.

Grum, B. (2019). Razlike v zaznavanju bivalnega okolja glede na starost prebivalcev. *Urbani izziv*,30(2), str. 20-30.

Grum, B., Kobal Grum, D. (2015). A model of real estate and psychological factors in decision-makingto buy real estate, *Urbani izziv*, Vol. 26 No. 1, pp. 82-91.

Grum (2020). *Kvantitativna in kvalitativne metode raziskovanja.* V: Avbelj, M., Brožič, L., Igličar, A., Jambre, P., Novak, M., Justinek, G., Strahovnik, V., Grum, B., Vodovpives, I. (2020). Metodologija znanstvenega raziskovanja. Nova Gorica: Nova univerza.

Grum, B., Temeljotov Salaj, A. (2013). The comparison of expressed satisfaction and expectations of potential real estate buyers in Slovenia and Japan, *Facilities*, Vol. 31 No. 1-2, pp. 6-23. http://www.emeraldinsight.com/journals.htm?articleid=17076508&show=abstract, doi: 0.1108/02632771311292482

Grum, B., Temeljotov Salaj A. (2016). Medgeneracijsko sobivanje mladih in starih : medkulturna primerjava = Intergenerational living : an intercultural comparison. *Urbani izziv*, 27(1), str. 76–88.

Grzeskowiak, S., Sirgy, M. J., Dong-Jin, L. and Claiborne, C. B. (2006). Housing Well-Being: Developing and Validating a Measure, *Soc Indic Res,* Vol. 79, pp. 503. https://doi.org/10.1007/s11205-005-5667-4

Hoxha, V., Dimitrovska Andrews, K. and Temeljotov Salaj, A. (2014). Cultural factors affecting urban planners´ intentions to regulate public space in Prishtina, Kosovo, *Urbani izziv*, Vol. 25 No. 2, pp. 76- 89. doi: https://doi.org/10.1108/F-03-2017-0033

Internetni vir 1: Likertova lestvica. Dostopna na: https://www.benstat.si/blog/likertova-lestvica/, (zadnjidostop 22. 9. 2019).

Internetni vir 2: Kvanitativne metode raziskovanja. Dostopno na: http://ninamedia.si/raziskovalne-metode/kvantitativne-metode-raziskovanja

Internetni vir 3: Razlika med kvalitativni in kvantitetnimi raziskavami. Dostopno na: https://sl.gadget-info.com/difference-between-qualitative

Internetni vir 4: Raziskovalni vodiči, Sistematični pregled literature, Univerza v Mariboru: Dostopnona: https://libguides.ukm.um.si/c.php?g=686582&p=4921830

Kibert, C. (2008). Sustainable construction: Green building design and delivery. New Jersey, JohnWiley & Sons.

Kobal Grum, D. (2019). Psihološki dejavniki zdravega življenjskega sloga v urbanem okolju. V: Grum, B. (ur.). *Znanstvene razprave s področja nepremičnin*. 1. natis. Nova Gorica: Nova univerza,Evropska pravna fakulteta. 2019, str. 9–39.

Kobal Grum, D., Grum, B. (2020). The impact of real estate maintenance costs on the potentialresettlement of elderly people : the case of Slovenia. *Društvena istraživanja : časopis za opća društvena pitanja*, 29(3), pp. 373-393.

Konjar, I., Koprivnikar, B., Grum, B. (2020). Razprava o trajnosti gradnji – Habitat za prihodnost,Francija, Val Thorens, Januar 2020, Neobjavljeno.

Kordeš, U., Smrdu, M. (2015). *Osnove kvalitativnega raziskovanja*. Univerzitetni učbenik, Koper:Univerza na Primorskem.

Korkmaz, K., Erten, D., Syal, M., Potbhare, V. (2009). *A Review of Green Building Movement Time linesin Developed and Developing Countries to Build an International Adoption Framework*. Proceedings of FifthInternational Conference on Construction in the 21st Century, Collaboration and Integration in Engineering, Management and Technology, May 20–22, 2009, Istanbul, Turkey.

Krigsvoll, G., Caccavelli, D., Thamling, N., Tomšič, M., Šijanec Zavrl, M., Skubic, M. (2005). *Vodnikza celostno načrtovanje in uporabo metod LCCA pri prenovi stavb*, Ljubljana, Gradbeni inštitut ZRMK.

Kulbickienė, L. (2004). Lietuvos gyventojų kultūriniai poreikiai: kultūros įstaigų vertinimas ir

lankymas. Sociologija. *Mintis ir veiksmas*, Vol. 8 No. 2, pp. 64-71.
Lobe, B. (2006). Združevanje kvalitativnih in kvantitativnih metod – stara praksa v novi preobleki?
*Družboslovne razprave*, 53, str. 55-73.

MacKerron, G. (2011). Happiness Economics from 35,000 Feet. *Journal of Economic Surveys* , Vol.26 No. 4, pp. 705-735. 10.1111/j.1467-6419.2010.00672.x

Mangialardo, A., Micelli, E., Saccani, F. (2019). Does Sustainability Affect Real Estate Market Values?Empirical Evidence from the Office Buildings Market in Milan (Italy). *Sustainability*, 11-12, pp. 2–14.doi:10.3390/su11010012, 2019.

Marinič, M., Kuhta, M., Šugman, N. (2016). Primerjava sistemov meril trajnostne prenove poslovnih stavb, *Gradbeni vestnik*, 65, str. 162-175.

McDaniel, C. D., Gates, R. H. (2008). *Marketing research essentials* (6th ed.). Hoboken: John Wiley &Sons.

Mesec, B. (1998). *Uvod v kvalitativno raziskovanje v socialnem delu*. Ljubljana: Visoka šola za socialno delo: https://sites.google.com/site/kvalitativnametodologija/kvalitativna-metodologija/uvod-v- kvalitativno-raziskovanje-v-socialnem-delu-knjiga

Meško, M., Roblek, V. (2013). Kako napisati in objaviti znanstveni članek s področja menedžmenta.
*Revija za univerzalno odličnost*, 2, 1, str. A1–A11.

Mohit, M. A., Ibrahim, M., in Rashid, Y. R. (2010): Assessment of Residential Satisfaction in Newly Designed Public Low-Cost Housing in Kuala Lumpur, Malaysia. *Habitat International*, *34*(1), pp. 18– 27.

Mostafa, M. and El-Gohary, N. (2014). Stakeholder-sensitive social welfare-oriented benfit analysis for sustainable infrastucture project development, *Journal of Construction Engineering and Managemnt*, Vol. 140 No. 9, https://doi.org/10.1061/(ASCE)CO.1943-7862.0000788.

Musterd, S., Gritsai, O. (2012). The creative knowledge city in Europe: Structural conditions and urban policy strategies for competitive cities. *European Urban and Regional Studies*, 20(3), pp. 343–359.

MSOV (2020). Mednarodni standardi ocenjevanja vrednosti, Slovenski prevod. Ljubljana, Slovenski inštitut za revizijo. https://si-revizija.si/datoteke/ocenjevalci/1021/ivs-msov-2017-slo_5.pdf, pridobljeno, 25.2.2020.

Nalewaik, A., Venters, V. (2008). Costs and Benefits of Building Green. *AACE International Transactions*, 15 ( (2), pp. 1–9.

Nahtigal, D., Grum, B. (2015). V*rednotenje nepremičnin : raziskovalna izhodišča pri uporabi načina primerljivih prodaj : znanstvena monografija*. 1. izd. Nova Gorica: Evropska pravna fakulteta, 2015. 212 str.

OECD (2013). OECD Guidelines on Measuring Subjective Quality of life, OECD Publishing. http://dx.doi.org/10.1787/9789264191655-en

Parkes, A., Kearns, A. and Atkinson, R. (2002). What makes people dissatisfied with theirneighbourhoods? *Urban Studies*, Vol. 39, pp. 2413-2438.

Pinquart, M. and Burmedi, D. (2004). Correlates of residential satisfaction in adulthood and old age: Ameta-analysis. In H.-W. Wahl, R. J. Scheidt, & P. G. Windley (Eds.), *Annual review of gerontology and*

*geriatrics. Focus on aging in context: Socio-physical environments* (pp. 195–222). New York, NY:Springer.

Plut, D. (2004). *Zeleni planet? Prebivalstvo, Energija in okolje v 21. stoletju*. Ljubljana, Didakta.

Pogrebskyi, T. (2016). Place of health care system in social infrastructure, *Human Geography Journal*,Vol. 20 No. 1, pp. 105-108.

Polese, M., Stren, R. (2000). *The Social Sustainability of Cities: diversity and the Management ofChange*. University of Toronto Press, Toronto, pp. 15-16.

Ramovš, K. (2013). Medgeneracjski sožitje in solidarnost. *Kakovostna starost*, 16(4), str. 3–33.

Raškovič, V., Muchova, Z., Petrovič, F. (2019). A New Approach to the Registration of Buildingstowards 3D Land and Property Management in Slovakia. *Sustainability*, 11, 4652.

Raupelienė, A. (2017). *The model of integrative management of rural social infrastructure development*. Proceedings of the 8th International Scientific Conference Rural Development 2017, Bioeconomy challengers, 23-24 Nov.2017, Aleksandras Stulginskis University, http://doi.org/10.15544/RD.2017.228

Reddy, S.V. (2016). Sustainable Construction: Analysis of Its Costs and Financial Benefits.
*International Journal of Innovative Research in Engineering & Management,* 3 (6), pp. 522–525.

Roelich, K., Knoeri, C., Steinberger, J., K., Varga, L., Blythe, P., T., Butler, D., Gupta, R., Harrison, G.,P., Martin, C. and Purnell, P. (2015). Towards resource-efficient and service-oriented integrated infrastructure operation, *Technological Forecasting and Social Change*, Vol. 92, pp. 40-52, https://doi.org/10.1016/j.techfore.2014.11.008

Rozman, T., Stopar, V. (2021). *Tehnična navodila za izdelavo zaključnih del*. Nova Gorica: Nova univerza.

Runde, T. P., Thoyre, S. (2010). Integrating sustainability and green building into the appraisal process.
*Journal of Sustainable Real Estate*, 2 (1), pp. 221–248.

Ryan, R.M., Deci, E.L. W.(2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annual Review of Psychology,* Vol. 52 No. 1, pp. 141-166.

Sandoval-Felix, J., Castanon-Puga, M., Gaxiola-Pacheco, C. G. (2021). Analyzing Urban Public Policies of the City of Ensenada in Mexico Using an Attractive Land Footprint Agent-Based Model.Sustainability 2021, 13, 714.

SGS Economics and Planning (n.d.). *The Role of Social Infrastructure in Local and Regional EconomicDevelopment*, htpp//www.sgsep.com.au/assets/insights/Linda-Perrine-Social-Infrastructure-presentation-().pdf

Shim, H., Kim, J. (2020). Measures for the Improvement of Feasibility Studies and Investment Reviews: Identification and Verification of Major Project Sectors Considering Balanced Regional Development.Sustainability 2020, 12, 9531.

Sierra, L., Yepes, V. and Pellicer, E. (2017). Assessing the social sustainability contribution of an infrastructure project under conditions of uncertainty, *Environmental Impact Assessment Review,* Vol. 67, pp. 61-72, https://doi.org/10.1016/j.eiar.2017.08.003.

Sierra, L., Yepes, V. and Pellicer, E. (2018). A review of multi-criteria assessment of the social sustainability of infrastructures, *Journal of Cleaner Production*, Vol. 187, pp. 496-513.

Sierra, L., Yepes, V., Garcia-Segura, T. and Pellicer, E. (2018a). Bayesian network method for decision-making about the social sustainability of infrastructure projects, *Journal of Celaner Production,* Vol. 176, pp. 521-534, http://doi.org/10.1016/j.jclepro.2017.12.140

Smernice za trajnostno gradnjo (2013). Prevod nemške smernice: Leitfaden Nachhaltignes Bauen, BMWBS. Zvezno ministrstvo za promet, gradbeništvo in razvoj mest (MBWBS), Invalidenstras, 44, Berlin. Prevod izdala, Inženirska zbornica Slovenije, Ljubljana.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research,* 104 (2019), pp. 333–339.

Šijanec Zavrl, M. (2015). Trajnostna gradnja. http://www.sgg.si/wp-content/uploads/2015/12/OPEN- HOUSE-clanek-Gradbenik-priloga-PH1.pdf, pridobljeno 17.11.2017, 2015.

Torgal, F., Jalali, S. (2011). *Eco-efficient Construction and Building Materials*, Verlag, London. Springer Limited.

Valdés-Vásquez, R. and Klotz L.E. (2013). Social sustainability considerations during planning and design: framework of processes for construction projects, *Journal of Construction Engineering and Management*, Vol 139, No. 1, pp- 80-89.

Van de Walle, D. (2002). Choosing rural road investments to help reduce poverty, *World Development*,Vol. 30 No. 4, pp. 575-589.

Vaznonienė G. (2011) *Subjektyvi gerovė ir socialinė atskirtis: pagyvenusių žmonių atvejis. Daktaro disertacija (Subjective well-being and social exclusion: a case of elderly people*, Phd Thesis). Kaunas: Kauno technologijos universitetas, 214 p.

Vaznonienė, G. (2015). The role of rural community enhancing rural social infrastructure changes,
*Research for rural development*, Vol. 2, pp. 176-182.

Vaznonienė, G. and Pakeltienė, R. (2017). Methods for the assessment of rural social infrastructure needs, *European Countryside*, Vol. 9 No. 3, pp. 526-540.

Zagorc Kocjan, G., Kekec, M. (2020). "Rad bi bil bolj…" Ali lahko namerno spremenimo svoje osebnelastnosti? *Psihološka obzorja*, 29, str. 143-157.

Zhang, X., Dorn, B. (2011). *Agile practices in a small-scale, time-intensive web development project*. V Information Technology: New Generations (ITNG), 2011 Eighth International Conference on, strani1060-1061, April 2011.

Wai, S.H., Yusof, A., Hai, T. and Ismail, S (2012). *A Conceptual Review of Social Infrastructure Projects*, http//ibimapublishing.com/journals/CIBIMA/2012/222039/222309.pdf

Walker, A. (2013): Active Ageing: A Policy for all Ages?. *The Journal of Nutrition, Health and Ageing*.The 20th IAGG Congress of Gerontology and Geriatrics, June 23–27, Seoul, Korea.

Abstract Book, str.21.

Warren-Myers, G. (2012). The value of sustainability in real estate: a review from a valuation perspective. *Journal of Property Investment $ Finance*, 30 (2), 115–144.

WCED (1987). Our Common future. Oxford: Oxford University Press.

Weidemann S., Anderson J.R. (1985) A conceptual framework for residential satisfaction. In: Altman I., Werner C.M. (eds) *Home Environments, Human Behavior and Environment (Advances in Theory and Research)*, Vol 8, pp. 153-182, Springer, Boston, MA.

Winkler, S. (2017). Housing, Finance, Policy and Wider Economy. *Journal of Management and Sustainability,* 7 (2), pp. 45–64.

Xia, B., Zuo, Z., Skitmore, M., Pullen, Stephen., Chen, Q. (2013). Green Star Points Obtained by AustralianBuilding Projects. *Journal of Architectural Engineering*, 19 (4), 302–308.

Yun, W., (2014). Modular construction and evaluation of green building technology system based on LEED. Journal of Chemical and Pharmaceutica Research, 6 (6), pp. 2904-2913.

# BOOK OF PROCEEDINGS

## 6th CONFERENCE OF INTERDISCIPLINARY RESEARCH ON REAL ESTATE

Enschede, Netherlands

September 2021

2021 CIRRE CONFERENCE

Institute for Real Estate Studies

SAXION UNIVERSITY OF APPLIED SCIENCES

**SCIENTIFIC COMMITTEE:**

Prof. Dr. Alenka Temeljotov Salaj, Norwegian University of Science and Technology, Norway
Prof. Dr. Jan Veuger MRE FRICS, Saxion University of Applied Sciences, The Netherlands
Prof. Dr. Bojan Grum, European Faculty of Law, Slovenia
Prof. Dr. Darja Kobal Grum, University of Ljubljana, Faculty of Arts, Slovenia
Prof. Dr. Anita Cerić, University of Zagreb, Faculty of Civil Engineering, Croatia
Prof. Dr. Champika Lasanthi Liyanage, University of Central Lancashire, United Kingdom
Assoc. Prof. Dr. Knut Boge, Norwegian University of Life Sciences, Norway
Prof. Dr. Valentina Zileska Pancovska, Ss. Cyril and Methodius University, Macedonia
Prof. Svein Bjørberg, Norwegian University of Scienece and Technology, Norway
Assist. Prof. Dr. Božena Lipej, European Faculty of Law, Slovenia
Assos. Prof. Dr. Boštjan Kerbler, Urban Planning Institute of the Republic of Slovenia, Slovenia
Assist. Prof. Dr. Boštjan Aver, European Faculty of Law, Slovenia
Prof. Dr. Athena Roumboutsos, University of the Aegean, Greece
Prof. Dr. Edward Finch, United Kingdom
Prof. Dr. Marija Bogataj, Zavod INRISK, Slovenia
Prof. Dr. Visar Hoxha, Rector, College ESLG, Prishtina, Kosovo
Prof. Dr. Dr. David Bogataj, Zavod INRISK, Slovenia
Dr. Jardar Lohne, Norwegian University for Science and Technology, Norway
Prof. Dr. Tore Haugen, Norwegian University of Science and Technology, Norway
Assist. Prof. Dr. Aljoša Dežman, European Faculty of Law, Slovenia
Assoc. Prof. Dr. Marjana Šijanec Zavrl, Building and Civil Engineering Institute ZRMK, Slovenia
Assoc. Prof. Dr. Francisco Campuzano Bolarin, Universidad Politécnica de Cartagena, Spain
Prof. Dr. Susanne Balslev Nielsen, Oslo Metropolitan University, Norway
Goran Milanov, Chairman of Bulgarian Facility Management Association, Bulgaria
Assoc. Prof. Dr. Eva Martínez-Caro, Universidad Politécnica de Cartagena, Spain
Assoc. Prof. Dr. Marit Støre Valen, Norwegian University of Science and Technology, Norway
Assoc. Prof. Olav Torp, Norwegian University of Science and Technology, Norway
Prof. Carmel Lindkvist, Norwegian University of Science and Technology, Norway
Assist. Prof. Milena Vukmirović, University of Belgrade, Faculty of Forestry, Serbia
Prof. Dr. Harun Tanrivemis, Ankara Univerity, Turkey

**EDITORIAL COMMITTEE**:

Prof. dr. Bojan Grum
Chairman of the Organizing Committee
Institute of real estate studies
European Faculty of Law, New University, Ljubljana, Slovenia

Prof. dr. Alenka Temeljotov Salaj
Chairman of the Programme Committee,
Norwegian University of Science and Technology, Norway
E-mail: alenka.temeljotov-salaj@ntnu.no

Prof.dr. Jan Veuger MRE FRICS
Chairman of the Organizing Committee
Saxion University of Applied Sciences, Netherlands
E-mail: j.veuger@corporaterem.ni

Organized by:
INSTITUTE OF REAL ESTATE STUDIES
Ukmarjeva 6, 1000 Ljubljana, Slovenia
Tel: +386(1)4214210
Fax: +386(1)4214215 e-mail: cirre2016@gmail.com
and
SAXION UNIVERSITY OF APPLIED SCIENCES
Enschede, Netherlands

Published by:
Institute of Real Estate Studies
Ukmarjeva 6, 1000 Ljubljana, SI

Edited by
Bojan Grum
Alenka Temeljotov Salaj
constructa@siol.net
tel: +386(1) 4214210

Programme Committee:

Alenka Temeljotov Salaj, Marija Bogataj, David Bogataj

Organizing Committee:

Bojan Grum, Matic Grum, Jan Veuger

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

CONFERENCE of Interdisciplinary Research on Real Estate (6; 2021 ; Enchede)
Book of proceedings [Elektronski vir] / 6th Conference of Interdisciplinary Research on Real Estate, 2021 CIRRE Conference, Enchede, September 17-18, 2021 ; [organized by Institute of Real Estate Studies and Saxion University of Applied Sciences; edited by Bojan Grum]. - Ljubljana : Institute of Real Estate Studies, 2021

ISBN
1. Grum, Bojan
COBISS.SI-ID

Content

**Reputation as a Blockchain technology country in Europe** ..... 7

**Physical characteristics of public space in large housing estates and their influence on daily lives of older residents** ..... 11

**Cooperatıve bankıng: the booster for economıc development wıth the focus on real estate sector** ..... 21

**Public space in the local neighbourhoods and age-friendly communities** ..... 28

**Work from Hotels: is Hybrid the Future?** ..... 43

**What estate factors could significantly affect the satisfaction of residents during pandemic Covid-19?** ..... 63

**Dealing with two pandemics at the same time: Covid19 and dementia** ..... 72

**Sustainable refurbishment of buildings and specific triggers for renovations** ..... 82

**Nitrogen emissions in the Netherlands in relation to national and European Union law** ..... 95

**Property development viability and community spirit – rethinking the safety angle** ..... 104

**User centre design in living environments is the way into a healthy environment** 127

**Transformation of city area in post-transition period in Skopje** ..... 138

**Green transformations of the main street in European capital cities** ..... 148

**A Case of Principle: The Commonalities Between Green Leasing and Urban FM from the perspective of Practice** ..... 165

**Discussing sustainability in prefabricated buildings** ..... 181

**Importance of Facility Management in renovation projects** ..... 191

**Strategic property development and maintenance strategy must be seen in context in order to achieve sustainable development of existing buildings** ..... 204

**Review of hospital management in Turkey and around the world in terms of principles of facility management, Ankara province case study approach** ..... 213

**Ethics in the use phase of building projects – a scoping review** ..... 228

**The importance of functional characteristics and economic environment on the value of real estate** ..... 244

**Digitization of services within the housing corporation sector: state of affairs, statemensts and opportunities for the future** ..... 252

**Sustainable Building Engineering – A healthy and beautiful district in a healthy and beautiful historical environment** ..... 259

**Summary on blockchain research in the leading global academic institutions** ..... 273

**Real Estate as a service** ..... 279

**The use of social media in Real Estate Marketing: A research on actual real estate marketing in Kosovo and identification of best practices** ..... 297

**Feasibility study of using AI-powered smart insole system to reduce back-pain among older workers in the Norwegian AEC industry** ..... 312

**The compensation fee for the use of building land as a basis for greater financial independence of local communities** ..... 326

**Current legislation as leverage for implementing the legality of public roads** ..... 342

**Comparison of functional regionalisation methods – geogerantological approach** ..... 365

**Guarantee Schemes for Loans to Investors In Community Social Infrastructure For Older People** ..... 378

**Overview of the social infrastructure in ten EU member states** ..... 391

**Return on investments in social infrastructure for older adults** ..... 411

**Planning the social infrastructure for sustainable development of long-term care in Slovenian urban municipalities** ..... 433

**An Explorative Research towards the Feasibility of Blockchain in Enhancing the Implemented Material passport and Life Cycle Assessment Methodology within Construction Sector in The Netherlands** ..... 449

# Reputation as a Blockchain technology country in Europe

**Jan Veuger**

President Academic Board FIBREE and professor Blockchain Saxion UAS
j.veuger@saxion.nl

## Abstract

This article is based on an ongoing study (2020-2022) that is part of the EU Erasmus+ project BlockWASTE, which has the overall objective to promote the application of Blockchain in municipal waste management through the development of targeted curricula and study plans on circular economy and Blockchain, training manuals and other educational tools. With this in mind, it is important to first ask whether there is a need for this based on the developments at universities and universities of Applied Sciences. We looked at what the status quo is of the spread of blockchain innovation in university education and research in the participating partner countries (Estonia, Greece, Germany, Netherlands and Spain) of the BlockWASTE project. A follow-up study on all European countries and perhaps on a global scale is recommended. But what are the main drivers and reasons for the fact that in some countries the diffusion process for the integration of blockchain (Veuger 2019-2020) innovation in science and education is faster and in others it takes longer, despite good preconditions? The choice of the five European countries for comparison is not only motivated by cooperation, but also by their comparability in terms of culture, economic framework and size.

Keywords: blockchain, countries, size, reputation, education.

## Reputation as a Blockchain technology

Recent research (Garritsen 2021, Veuger 2020a) shows that research in the area of Blockchain in particular has also increased explosively since 2016. Both studies have the limitation of their focus (health and real estate) but show a similar pattern. Doctoral studies (Barkel 2019-present, Garritsen 2020-present, Kors 2021-present and Tesselhof 2019-present) will also reveal what studies produce in the coming years.

The aim of the aforementioned study is a comparative analysis of Blockchain in the national higher education systems and good practice examples. The results of this study increase in value the more detailed and plausible their national analysis is. The EU Blockchain Observatory and Forum (2020) describes the current state of technological, market and regulatory development in each of the 27 EU Member States, UK and Switzerland.

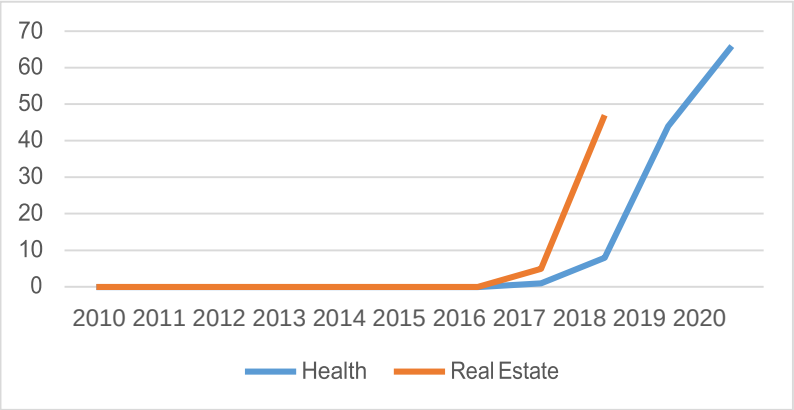



*Figure 1: Number of scientific publications Blockchain 2016-2020.*
*Source Garritsen 2021 and Veuger 2020a.*

## Comparison of national Blockchain Ecosystems

The speed of innovations in education, research and science depends essentially on national framework conditions and the national ecosystem. In the Netherlands, for example, we have the Dutch Blockchain Coalition, a partnership between the (national) government, research institutions and the professional field. In such a context, the government shapes innovation and the business community, knowledge centres and stakeholders involved can act as catalysts and facilitators of innovation. Below, the blockchain ecosystems of the five countries are analyzed and roughly evaluated in detail according to the three aspects of Government Policy, Legislation and Regulation, and Blockchain Economy: startups and industry. According to the following table, three scores are assigned in each case.

*Table 1: Scoring national Ecosystem, source: BlockWASTE 2020*

| ***Country*** | **Government Policy** | **Legislation & Regulation** | **Blockchain Economy** |
|---|---|---|---|
| *Score 1* | very supportive | advanced | vibrant |
| *Score 2* | supportive | intermediate | intermediate |
| *Score 3* | lacking | lacking | low activity level |

If the scores for the three categories, Government & Politics, Legislation & Regulation, and Blockchain Business are converted into numerical numbers, scores from 1 to 3, the following picture emerges (BlockWASTE 2020):

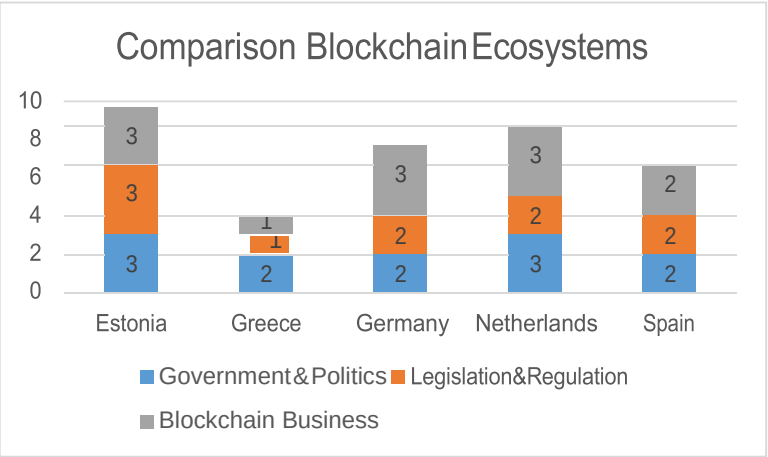



*Figure 2: Comparison Blockchain Ecosystems. Source BlockWASTE 2020.*

The study BlockWASTE (2020) draws the following conclusions. Estonia confirms its reputation as a technology country that has consistently opted for IT and Blockchain-based management of public services and has many years of experience with Blockchain applications in this regard, followed by the Netherlands which has been rapidly emerging over the past two years. It can be assumed that smaller countries may have a higher speed of adaptation of technological innovations. It can be argued that they may also continue to need them in order to further enhance their competitiveness. In Greece, the government could use Blockchain to improve its economic effort. In Spain, the government still has a lot of catching up to do and there is room for improvement. A follow-up study and a global comparison would be a very interesting study to investigate in the coming period.

## References


Barkel, C. (2019-present), PhD-project Developing an innovation in an ecosystem; the case of Blockchain. *Understanding decentralized ecosystems in tourism*. Saxion UAS.

BlockWASTE (2020-2022), *Blockchain and European Higher Education System. A snapshot on the diffusion process of Blockchain Innovation into European academia. Comparative study of Blockchain in Higher Education Systems of Estonia, Germany, Greece, the Netherlands, and Spain*. National Technical University of Athens (NTUA), Greece; A Association Empresarial de Investigation Centre Technologico Del Marmol, Spain; Tallina Techikaulikool, Estonia; Fachhochschule Bielefeld, Germany and Saxion University of Applied Sciences, The Netherlands.

EU Blockchain Observatory and Forum (2020), Reports | EUBlockchain (eublockchainforum.eu)

Garritsen, G. (2021), Blockchain in Healthcare. In: Blockchain Technology and Applications III (upcoming 2021).

Garritsen, G. (2020-present), *PhD-project Impact of digital transformation on organisations.* Saxion UAS.

Kors, J. (2021-present), *PDEng-project Blockchainplatform met maatschappelijke meerwaarde voor MKB-zorgbedrijven die leverancier van gemeente zijn in het kader van*

*Wet Maatschappelijke Ondersteuning (WMO). [Blockchain platform with social added value for SME care companiesthat are suppliers to the municipality within the framework of the Social Support Act (WMO).]* Saxion UAS.

Tesselhof, K. (2019-present), *PhD-project What is the added value of a Blockchain within a supply chain process with stakeholders and under what conditions can a Blockchain be implemented?* Saxion UAS.

Veuger, J. (2020), Sole Editor *Blockchain Technology and Applications II*. Peer reviewed. Nova Science Publishers Inc. New York USA. ISBN978-1-53617-931-6. https://novapublishers.com/shop/blockchain-technology-and-applications-ii/

Veuger, J. (2020a), *A Database Exploring Blockchain and Real Estate* in *Disruptive Technology, Legal Innovation, and the Future of Real Estate (pp. 3-25).* https://www.springer.com/gp/book/9783030523862#

Veuger, J. (2019), Sole Editor *Blockchain Technology and Applications*. Peer reviewed (262 p.) Nova Science Publishers Inc. New York USA. May 2019. ISBN 978-1-53615-288-3. https://novapublishers.com/shop/blockchain-technology-and-applications/

Book reviews: https://novapublishers.com/shop/blockchain-technology-and-applications/

# Physical characteristics of public space in large housing estates and their influence on daily lives of older residents

**Boštjan Kerbler**

**Richard Sendi**

Urban Planning Institute of the Republic of Slovenia, Slovenia
bostjan.kerbler@uirs.si
richard.sendi@uirs.si

**Maša Filipovič Hrast**

University of Ljubljana, Faculty of Social Sciences, Slovenia
masa.filipovic@fdv.uni-lj.si

**Barbara Goličnik Marušić**

Urban Planning Institute of the Republic of Slovenia, Slovenia
barbara.golicnik@uirs.si

**Ajda Šeme**

seme.ajda@gmail.com

## Abstract

In this paper, we first created a theoretical framework with a description of the physical characteristics of large housing estates and their public spaces by literature review. Secondly, we took into account literature about how the physical environment influences on daily lives of older people. However, our society is confronted with population ageing and this process is also happening in the large housing estates which were primary dedicated to young workers with children. Primary residents of large housing estates grew old, their children grew up and moved away, and all that is left is public open space that is not appropriated for older resident's needs. That is why we should pay more attention to represent these needs to decision-makers and encourage changes that would be more appropriate for older residents and also other groups of users. Therefore, we compiled two theoretical frames and try to make a connection between them, and answer the question of how physical characteristics of public spaces in large housing estates influence or could influence on daily lives of older residents. Large housing estates were constructed all over the Europe after Second World War, because of a huge housing shortage. After all, this type of housing is more common for Central and Eastern European countries where it represents about 20–40 per cent of the total housing stock. For that time countries of Central and Eastern Europe were mostly characterized by socialist political regimes and one of the important political goals

was to provide suitable homes for everybody. That is why states started to construct large housing estates at the urban edge as high-density residential blocks with 5–12 storeys on average. The construction concept based on the CIAM principles of urban planning and also corresponded with socialist planning theory which sometimes meant the gap between theory and reality. These differences are most obvious in the neighbourhood's monotonous appearance with the only residential use of space. In primary plans, we can find lots of different services included in large housing estates, but planners were forced to reduce the costs of construction and they have deliberately postponed the construction of non-residential facilities. Even though large housing estates were situated on the city's periphery, they were always well connected with the city centre by public transport. Large urban blocks were also suitable for car use, but with their increasing number car space started to interfere with pedestrian paths and public spaces. One of the most important characteristics of large housing estates is however public open space. The aim of creating green open spaces within large housing estates was providing healthy living conditions for residents mostly focused on recreation, while at the same time public space was a key component of political and educational ideologies. Public spaces in large housing estates didn't have any commercial function but they are still important as places for social interactions. However, the mere existence of public space does not guarantee its use. Common physical characteristics of public spaces in large housing estates that reduce their use are neglected areas with litter on playgrounds and green areas, poor maintenance of urban furniture, other forms of vandalism, unattended dogs, and general mismanagement. Mentioned characteristics are even more fatal for older residents who often feel discouraged to use public open spaces but at the same time, they are more dependent on the neighbourhood environment because of their weaker health, low incomes, smaller social network, and general lack of daily activities. Neighbourhood qualities that are associated with the well-being of older residents in large housing estates are low crime risk, the presence of quality shop as shops are recognized as an important place for casual interactions, the overall perception of quality of the neighbourhood, green open spaces that provide them the opportunities to walk (for recreation and transport) and at the same time opportunities for social interactions with friends and neighbours.

Keywords: large housing estates, public space, older people.

## Introduction

Large housing estates were built all over Europe after the Second World War because of an enormous housing shortage. However, this type of housing is more common in central and eastern European countries, where it represents about 20 to 40% of the total housing stock (Dimitrovska Andrews & Sendi, 2001; Temelová et al., 2010). In the postwar years, the countries of central and eastern Europe mostly had socialist political regimes, and an important political goal was to provide suitable homes for everybody. The countries of central and eastern Europe rapidly built working-class neighborhoods to address the scarcity of housing due to large migration of the rural population to cities, where it was easier to make a living. The urban plans envisaged that young and healthy people would live in these large housing estates, and therefore the public space in these neighborhoods was

adapted to their needs. Because Slovenia is characterized by low housing mobility (Mandič, 2015; Sendi, 2017), and because the residents had the option to buy their rental apartments after independence in 1991, the majority of the first residents still live in large housing estates. As a result, the age structure of these large housing estates has changed considerably: their residents have grown old, but the public space in these large housing estates is still adapted to younger and healthy people, as planned, rather than for the needs of the elderly.

This article therefore creates a theoretical framework with a description of the physical characteristics of large housing estates and their public spaces based on a literature review. Second, it takes into account literature about how the physical environment influences the daily lives of older people. It is presumed that public space in large housing estates has great importance among older residents and for the quality of their lives. With age, people become strongly attached to the environment where they spend most of their lives—that is, they develop a strong sense of place attachment. They have built the social network in their living environment, and public spaces are an important area to meet and form links with others.

## Large postwar housing estates

The principles of urban planning in central and eastern European countries were influenced by socialist political regimes, under which egalitarianism, collectivism, and planned urbanization were core values for decision-making processes on architecture and urbanism. Spatial development followed these values as the main means for transforming society and culture and to achieve other political and ideological goals (Bitušíková & Luther, 2010; Hirt, 2014). Decision-making about urban planning and funding new construction was the responsibility of the state, with heavily centralized organization. In these top-down systems, local planning had the role of translating technical, political, and ideological goals into city documents—mostly to fit the economic goals of central authorities into the city's urban landscape. The second important role of local planning in this centralized planning system was active participation in selecting the sites needed for new construction, mostly for large housing estates (Engel, 2006; Stanilov, 2007a; Hirt & Stalinov, 2009; Bitušíková & Luther, 2010; Krklješ & Nedučin, 2016). In addition, spatial development was also strongly influenced by the absence of a property market and state appropriation of land (Krklješ & Nedučin, 2016). The socialist states became the main owners of land, and they had complete control over spatial production and housing (Stanilov, 2007b; Bitušíková & Luther, 2010; Hirt, 2014; Sýkora & Stanilov, 2014). Because city centers were usually occupied by wealthier families, who were treated as enemies of the socialist regimes, those families were forcibly evicted from their homes. Real estate in the city centers was filled with evident followers of the socialist regimes, but an even greater problem that these countries had at this time was finding a solution for the masses of people that needed places to live after the enormous devastation of the Second World War (Bitušíková & Luther, 2010; Hirt, 2014). Because single-family housing did not correspond to the ideological concepts of the socialist regimes, and it also could not fulfill the huge need for new homes in cities and industrial centers, these countries started to carry out an important political goal: providing suitable homes for everybody, with suburban development

of large housing estates next to industrial areas on the edges of the cities (Hirt, 2014; Dinić & Mitković, 2016). There were additional reasons why these countries decided to build large housing estates as the main type of housing. First, prefabricated housing construction was standardized, and so it was relatively cheap and easy to create large urban structures with the replication of construction units to provide as much housing as quickly as possible (Dimitrovska Andrews & Sendi, 2001). Second, it was much easier for these countries to construct new housing on the city's outskirts, rather than renovating individual housing units that were somehow affected by the consequences of war and/or were not well maintained. Even though large housing estates were located on the city's periphery, they were always well connected with the city center by public transport. In addition, new large urban blocks were also suitable for car use and sited in strategic locations for additional industrial support (Stanilov, 2007a; Sýkora & Stanilov, 2014). However, the reasons for building large housing estates were not only economic, but also social. Bitušíková and Luther (2010: 10) summed up the essence of these social reasons with the following: "The objective of these principles was to equalize living conditions for all by producing large state housing complexes in suburbs and moving together families of different social groups and classes in order to diminish class differences."

Socialist planning theorists took a few examples from global developments in planning and urbanization for the theoretical basis of building large housing estates. They interpreted these examples in accordance with socialist ideals. These examples were Perry's neighborhood unit concept, the CIAM (Congrès internationaux d'architecture modern) principles of modern city planning, presented in the Athens Charter, and works by Le Corbusier, Ernst May, and other important representatives of the modernist movement of the twentieth century. In theory the main idea of these estates was that each estate should provide its inhabitants with services needed for everyday lives; however, this was not reflected in reality. The primary plans included many different services in large housing estates, but planners were forced to reduce the costs of construction and they deliberately postponed the construction of nonresidential facilities. In addition, these socialist countries focused on heavy industry and not on commercial services (Hirt & Kovachev, 2006; Stanilov, 2007a; Sýkora & Stanilov, 2014; Dinić & Mitković, 2016). This led to the monofunctionally of large housing estates with only residential functions without commercial ones (Dimitrovska Andrews & Sendi, 2001; Dinić & Mitković, 2016). The neighborhood's monotony was also reflected in construction. Large housing estates were mostly built with prefabricated building materials, but the quality varied from country to country because some of them were also developing their own construction systems and testing combinations of various construction technologies. Minimum living standards were considered in the construction of large housing estates, and adequate sanitary provisions and central heating were applied to all new construction. Most of the structures in the housing estates were simple-looking high-rise buildings with five to twelve stories, which created the monotonous appearance of mostly all large housing estates (Dimitrovska Andrews & Sendi, 2001; Hirt & Stalinov, 2009; Temelová et al., 2010; Dinić & Mitković, 2016).

## Public space in large housing estates

Despite the monotony of large housing estates, public space was of great importance in these residential neighborhoods. As Hirt (2014: 2) pointed out, “public space was a key component of the regimes’ aspirations to consolidate power and transform the basic structure of the society.” Public space was designed to control and supervise people’s lives, and, with that in mind, different types of public spaces were created, with hierarchical functions (Engel, 2006). The first type of public space was monumental public spaces as plazas, boulevards, city parks, and public places within industrial areas that served for demonstrations of official ideology; these were strongly controlled by the state (Engel, 2006; Hirt, 2014; Mantey & Kępkowicz, 2018). The second type of public space was generous greenery in the newly built housing estates, such as parks and other open spaces between buildings. The entire system of green areas was created not only because of demands for healthier environments for the socialist workers and to improve the aesthetic quality of the housing estates, but mostly to support social interactions. The socialist countries were very generous in the provision of open spaces between buildings because, as already mentioned, they had complete control over property, and they easily combined fragmented private spaces for better presentation of what the socialist way of life should look like. Public spaces had priority over private spaces, and in this manner the public spaces of the housing estates were not to be used individually, but with the purpose of strengthening socialism. Nevertheless, public spaces within residential neighborhoods thus became the only spaces that were not constantly controlled by the state and were full of people at all hours of the day (Engel, 2006; Hirt & Kovachev, 2006; Al-Hagla, 2008; Hirt, 2014; Mantey & Kępkowicz, 2018; Tuvikene et al., 2019). They provided people with important living space beyond their private homes, and this is how public open spaces within large housing estates became one of their most important features (Engel, 2006; Poposki, 2011; Kristiánová, 2016).

The ground plans for green space within residential estates were different from that of a city park. The green areas within large housing estates were intended to be the center of the residential complex, where different functions of space were less divided into separate areas than in the cities; for example, places for adults were close to playgrounds. The planners paid attention to planning for passages and courtyards between residential blocks to host quiet activities and remain pleasant places for relaxation and socializing. Places for playing sports and for games for young people and other noisier activities were located on the edges of the housing estates. Although the planners intended open spaces to serve as spaces of mixed use, their plans were more influenced by the needs of young and middle-aged workers, who were the majority of residents in large housing estates (Engel, 2006; Kilnarová & Wittmann, 2017).

As already pointed out, a monotonous appearance was one of the general characteristics of large housing estates, and this also influenced the appearance of public spaces. Public spaces often had a homogeneous and undifferentiated character with very little chance to develop a more individual one mostly because of cutting costs during the construction of the estates or as a result of the lack of an adequate spatial framework (Engel, 2006; Dinić & Mitković, 2016). In some cases,

open spaces simply became crossings for residents to reach the entrances of their housing units. Another circumstance that led to the monotonous appearance of public spaces was the design principle that all people are equal and, in line with this, places and their functions were planned as a rigorous scheme. Despite their monotonous appearance, open spaces within housing estates represented a significant place where people could spend time near their homes and socializing with each other (Engel, 2006).

## 4 Older residents in large housing estates

Since the collapse of the socialist system between the late 1980s and beginning of the 1990s, large housing estates have been undergoing rapid changes mostly because of the return of the land to its original owners. The countries of central and eastern Europe started to negate the principles of the old socialist system, which meant a radical withdrawal of the state from controlling property. The state's public duties, such as maintenance and provision of public spaces, shifted to the local level, but local authorities were financially relatively weaker than the state and had fewer resources to maintain public spaces in good condition. In addition, new stakeholders emerged, competing for space, and this has resulted in chaotic and unregulated development of public space within large housing estates (Stanilov, 2007a; Hirt, 2014; Kristiánová, 2016; Mantey & Kępkowicz, 2018). The transformation of residential neighborhoods resulted in a change of housing typology, population density, and models of transport, and in a decrease in the size and quality of public spaces. Two main actions occurred in the public space of large housing estates. In the first type of action, private stakeholders started to convert open spaces to build various structures, such as erection of billboards, sale of space, and construction of small commercial buildings and parking lots to earn money by commercializing public space. The second type of action was basically the opposite of the first—public spaces were left unmaintained, which led to neglected spaces with decrepit equipment and outdated paving (Stanilov, 2007b; Hirt, 2014; Kolcunová et al., 2016; Krklješ & Nedučin, 2016). The public spaces of large housing estates inherited from the socialist regimes thus do not correspond to the demands of the original residents, who see the disappearance of open space as a decline in the quality of life in their communities (Stanilov, 2007b; Kolcunová et al., 2016; Krklješ & Nedučin, 2016; Mantey & Kępkowicz, 2018). On the other hand, the original residents of the large housing estates, who were mostly young workers and families with small children, grew old over the decades, and their children grew up and moved away. With this in mind, it can be concluded that not only is physical space declining in the large housing estates, but their demographic and socioeconomic structure have also changed.

According to Temelová et al. (2010), in postwar housing estates the primary residents grew old and their needs changed—their use of public spaces changed compared to their younger years. For older residents, the importance of the neighborhood environment depends on a combination of factors, such as weaker health, low income, and their enforced disengagement from the mainstream of society. Because they are less mobile, they become more dependent on their neighborhood environments for services and social relationships, and they need better provision of different services within or near their housing estate. Therefore,

good provision with different possibilities can enhance the quality of their lives and help them maintain their general health and wellbeing. In order to remain connected with the spaces where they have grown old, the elderly also prefer to live in more quiet environments and in environments that are not changing too quickly (Lawton et al., 1980; Leslie et al., 2004). For them, the most disturbing change that causes their disidentification with the open spaces of their neighborhood is the occupancy of green spaces and pathways, especially with cars (Francis et al., 2012; Kristiánová, 2016). Unfortunately, however, the increasing number of cars started interfering with pedestrian paths and public spaces. In addition to this problem, many other problems appeared in postwar housing estates after the collapse of socialism in central and eastern Europe, such as unmaintained public spaces with modest urban designs, poor provision of urban furniture, and insufficient definition of space. This is important because the aesthetics and emotions they evoke are one of the most important factors of neighborhood satisfaction among the elderly, and that is why this aspect has a strong influence on their social contacts. Studies have also identified the aesthetics of public spaces in neighborhoods as a factor in walking habits among the elderly (Hur et al., 2010). Walking is recognized as the most popular recreation activity and form of movement among the elderly (Leslie et al., 2004; Li et al., 2005; Sugiyama & Ward Thompson, 2008). Public space characteristics that contribute to walking activity in large housing estates are green and open spaces for recreation with good paths that are easy to walk on with no obstacles, places to sit, a sense that traffic is safe, mixed land use, residential density, and a number of destinations that can be reached. Characteristics that discourage older people from walking are various forms of vandalism, unattended dogs, young people loitering in neighborhood open spaces, and unmaintained public spaces (Li et al., 2005; Sugiyama & Ward Thompson, 2008). Due to unclear ownership issues (e.g., municipal ownership or too many owners), residents are often unable to agree on who is responsible for maintaining public space in large housing estates and what costs they should bear. This is why public spaces are often maintained by residents themselves, but this is not enough for the general arrangement of public spaces (Dinić & Mitković, 2016; Kristiánová, 2016). Furthermore, interactions among elderly people and other residents occur more commonly in well-maintained open spaces where they feel safe and satisfied. These interactions occur spontaneously in such public spaces, and they strengthen mutual trust and friendship. The more such interactions there are, the more social networks are intertwined between older residents and their neighbors. In large housing estate communities with tight interrelationships, neighbors often offer support and assistance to older residents, especially to those that are less mobile. Another aspect of casual but very important social interactions for the elderly is provided by services in large housing estates, especially grocery stores, where older residents meet with other people from the neighborhood (both younger people and others their own age) that they can relate to (Lawton et al., 1980; Leslie et al., 2004; Sugiyama & Ward Thompson, 2008; Hur et al., 2010; Francis et al., 2012; Kilnarová & Wittmann, 2017). Because older people frequently care for their grandchildren, playgrounds are also an important element of public space in large housing estates for the elderly as a different kind of social engagement (Lawton et al., 1980; Leslie et al., 2004; Sugiyama & Ward Thompson, 2008).

## Conclusions

The theoretical research in this article confirms the hypothesis that the physical characteristics of public space in large housing estates strongly influence the daily lives of older residents. Suitable public space (in large housing estates) adapted to the needs of the elderly can be of great help in ensuring quality of life in old age. This is especially the case with the elderly that have health issues and age-related problems (e.g., limited mobility) and for whom public space in their neighborhood provides the only direct contact with the outside world and community. Specifically, public spaces in residential areas constitute the most easily accessible space outside their homes (Sendi, 2007). When a public space is green, it also provides important contact with nature, especially for the elderly, who might have limited access to open green areas further away. From the urban design perspective, the layout of public space is also important because it may have a vital effect on individuals' ability to orient themselves in it, which is a key factor for the elderly with symptoms of dementia. Public open spaces adapted to the needs of the elderly are important to ensure everyone a dignified—and, first and foremost, high-quality—life in old age and active integration into the local community. Regardless of all the positive characteristics of public space for high-quality aging mentioned above, public spaces in large housing estates are not given as much attention as public spaces in non-housing (urban) areas. In addition, significantly fewer studies have been conducted on public space in large housing estates. However, the studies that have been conducted have revealed diverse problems, especially the inappropriate physical properties of public space in housing estates, such as the spatial layout of public areas, problems connected with parking, poor maintenance, inadequate management of public spaces and their inappropriate use, conflicts between various age groups, and sociocultural differences. The elderly in particular tend to be exposed to all these problems. On the one hand, they belong to weaker groups and, on the other, public space in a housing estate is of special importance to them. The elderly, especially those with mobility impairments, are limited by various architectural obstacles in their living environment that prevent access to public space, which is often a result of inappropriate planning. The most common architectural obstacles that hinder their movement in the public space of housing estates include stairs and fenced open and green areas (Sendi, 2007). For these reasons, it is important to explore public space in large housing estates and the needs of their elderly residents regarding this space.

The findings presented in this article are the result of the first work package in the three-year project started in September 2020 titled *Public Space for the Needs of the Elderly in Large Housing Estates in Slovenia*, which is financially supported by the Slovenian Research Agency.[1] The main objective of the project is to define the key elements of public space in large housing estates regarding the needs of the elderly to remain full members of the community for as long as possible and thus be actively involved in social life in their neighborhoods. This article is a preparation for empirical research that will be conducted in the second work package. After the realization of the empirical research, detailed analysis and interpretation of quantitative and qualitative data is planned. The final goal of the project (and all the work packages together) is to prepare strategic guidelines and recommendations for renovating open spaces in large housing estates.

## Acknowledgments

The research was financially supported by ARRS (Javna agencija za raziskovalno dejavnost Republike Slovenije / Slovenian Research Agency), grant numbers J5-2568.

## References

Al-Hagla, K. (2008) Towards a sustainable neighbourhood: The role of open spaces. *International Journal of Architectural Research*, 2(2), pp. 162–177.

Bitušíková, A. & Luther, D. (2010) Sustainable diversity and public space in the city of Bratislava, Slovakia. *Anthropological Notebooks*, 16(2), pp. 5–18.

Dimitrovska Andrews, K. & Sendi, R. (2001) Large housing estates in Slovenia: A framework for renewal. *European Journal of Housing Policy*, 1(2), pp. 233–255.

Dinić, M. & Mitković, P. (2016) Načrtovanje primestnih območij: od spalnih naselij do trajnostnih sosesk / Suburban design: From “bedroom communities” to sustainable neighborhoods. *Geodetski vestnik*, 60(1), pp. 98–113.

Engel, B. (2006) Public space in the blue cities in Russia. *Progress in Planning*, 66(3), pp. 147–239.

Francis, J., Giles-Corti, B., Wood, L. & Knuiman, M. (2012) Creating sense of community: The role of public space. *Journal of Environmental Psychology*, 32(4), pp. 401–409.

Hirt, S. (2014) The post-public city: Experiences from post-socialist Europe. In: Stuart, J. & Wilson, M. (eds.) *Globalizing architecture: Flows and disruptions*, pp. 123–129. Miami Beach, FL, 102nd ACSA Annual Meeting Proceedings.

Hirt, S. & Kovachev, A. (2006) The changing spatial structure of post-socialist Sofia. In: Tsenkova, S. & Nedović-Budić, Z. (eds.) *The urban mosaic of post-socialist Europe: Space, institutions and policy*, pp. 113–130. New York, Physica-Verlag HD.

Hirt, S. & Stalinov, K. (2009) *Revisiting urban planning in the transitional countries*. Available at: https://staging.unhabitat.org/downloads/docs/GRHS2009RegionalTransitionalCountries.pdf (accessed 30 June 2021).

Hur, M., Nasar, J. L. & Chun, B. (2010) Neighborhood satisfaction, physical and perceived naturalness and openness. *Journal of Environmental Psychology*, 30, pp. 52–59.

Kilnarová, P. & Wittmann, M. (2017) Open space between residential buildings as a factor of sustainable development: Case studies in Brno (Czech Republic) and Vienna (Austria). *IOP Conference Series: Earth and Environmental Science*, 95(5), pp. 1–12.

Kolcunová, P., Siláči, I. & Vitková, L. (2016) Public space and its role to transforming the community. *Procedia Engineering*, 161, pp. 1944–1948.

Kristiánová, K. (2016) Post-socialist transformations of green open spaces in large scale socialist housing estates in Slovakia. *Procedia Engineering*, 161, pp. 1863–1867.

Krklješ, M. & Nedučin, D. (2016) Public spaces for children in a post-socialist city. *South East European Journal of Architecture and Design*, 2016, pp. 1–5.

Lawton, M. P., Nahemow, L. & Yeh, T. (1980) Neighbourhood environment and the wellbeing of older tenants in planned housing. *International Journal of Aging and Human Development*, 11(3), pp. 211–227.

Leslie, E., Saelens, B., Frank, L., Owen, N., Bauman, A., Coffee, N., et al. (2004) Residents' perceptions of walkability attributes in objectively different neighbourhoods: A pilot study. *Health Place*, 11(3), pp. 227–236.

Li, F., Fisher, K. J., Brownson, R. C. & Bosworth, M. (2005) Multilevel modelling of built environment characteristics related to neighbourhood walking activity in older adults. *Journal of Epidemiology and Community Health*, 59(7), pp. 558–564.

Mandič, S. (2015) Stanovanjske razmere in mobilnost starejšega prebivalstva – Slovenija v primerjalni perspektivi. In: Majcen, B. & Mašič, S. (eds.) *Značilnosti starejšega prebivalstva v Sloveniji – prvi rezultati*, pp. 183–195. Ljubljana, Institute for Economic Research.

Mantey, D. & Kępkowicz, A. (2018) Types of public spaces: The Polish contribution to the discussion of suburban public space. *The Professional Geographer*, 70(4), pp. 633–654.

Poposki, Z. (2011) Spaces of democracy: Art, politics, and artivism in the post-socialist city. *Romanian Political Science Review*, 11(4), pp. 713–723.

Sendi, R. (2007) Izboljševanje javnih prostorov. In: van Kempen, R, Murie, A., Knorr-Siedow, T. & Tosics, I. (eds.) *Regeneracija velikih stanovanjskih sosesk v Evropi*: *priročnik za boljšo prakso*, pp. 115–125. Ljubljana, Urban Planning Institute of the Republic of Slovenia.

Sendi, R. (2017) Lastništvo stanovanj v Sloveniji: iskanje alternativne teorije o njegovi čezmerni rasti / Homeownership in Slovenia: Searching for an alternative theory on its excessive growth. *Urbani izziv,* 28(1), pp. 55–66 [135–146].

Stanilov, K. (2007a) Housing trends in central and eastern European cities during and after the period of transition. In: Stanilov, K. (ed.) *The post-socialist city: Urban form and space transformations in central and eastern Europe after socialism*, pp. 173–190. Dordrecht, Springer.

Stanilov, K. (2007b) Democracy, markets, and public space in the transitional societies of central and eastern Europe. In: Stanilov, K. (ed.) *The post-socialist city: Urban form and space transformations in central and eastern Europe after socialism*, pp. 269–284. Dordrecht, Springer.

Sugiyama, T. & Ward Thompson, C. (2008) Associations between characteristics of neighbourhood open space and older people's walking. *Urban Forestry Urban Greening*, 7(1), pp. 41–51.

Sýkora, L. & Stanilov, K. (2014) The challenge of postsocialist suburbanization. In: Stanilov, K. & Sykora L. (eds.) *Confronting suburbanization: Urban decentralization in postsocialist central and eastern Europe*, pp. 1–32. Chichester, UK, Wiley-Blackwell.

Temelová, J., Novák, J., Ouředníček, M. & Puldová, P. (2010) Housing estates in the Czech Republic after socialism: Various trajectories and inner differentiation. *Urban Studies*, 48(9), pp. 1811–1834.

Tuvikene, T., Sgibnev, W., Zupan, D., Jovanović, D. & Neugebauer, C. S. (2019) Post-socialist infrastructuring. *Area*, pp. 1–8.

# Cooperatıve bankıng: the booster for economıc development wıth the focus on real estate sector

**Islam Hasani**

Kolegji ESLG
islam.hasani@eukos.org
islamhasani@hotmail.com

## Abstract

Banking industry has become an imperative of the contemporary society. It is unimaginable for today's businesses to exist without the support of financial system used for different purposes. However, this paper provides an alternative to the conventional banking business. The main aim of the paper is to assess the potentials of cooperative concept schemes for banking and financing purposes. The paper argues that this concept provides an important role for furthering socio-economic development of the poor and small entrepreneurs without charging interest on them but using alternative way of financing. Furthermore, financing schemes should have moral and ethical attributes that can effectively motivate entrepreneurs to succeed. The paper, first, introduces the concepts of banking, and presents a case for cooperative banking. The paper then discusses the potentials of various financing schemes that can be advanced and adapted from conventional banking to the concept of cooperative known also as partnership finance and relating it to real estate financing. Finally, the paper concludes with some remarks and recommendations to accommodate this concept within the present banking structure.

Keywords: cooperative banking, financial scheme, entrepreneur, motivation.

## Introduction

Cooperative banking is a concept that does not solely rely on giving loans upon which is expected to charge interest in return but rather enter into partnership by establishing the relationship with the customer as partners and not lender-borrower relationship. The rationality behind the idea of replacing lending and charging interest on the loans with the partnership concept in different levels is to create a relation between the partners where they protect and help one another succeed because the profit of both of them depends on the success of the project. This concept is believed to be helpful for both the bank and the client. There are cases where they earn more by entering into the business or scheme where they need to agree in advance for sharing the risk and reward. This idea is supposed to provide stability to the whole financial system where risk and reward has to be shared between the financial institution and the client. The proposed models of financing

(particularly the diminishing partnership and the cooperative financing model) are based on the author's personal banking experience.

## Why Cooperative Banking?

Good question to be answered at this point is whether there is need for such a system when we are aware that banks are available and are very well developed and sophisticated for supporting any project. The current practice of financing in the real estate sector is that lenders (banks and other financial institutions) finance both sides; the real estate developer for constructing and developing the project on one hand and also the buyer of that property on the other hand. The first, the real estate developer has to price the product by calculating the loan and the interests charged on that loan and then mark-up the product and sell it to the client. The second, the client (buyer of that property) has to agree to pay the price of the property which includes the interest of the bank plus the interest charged on the loan plus the profit of the real estate developer. Just add to the whole price[1] the interest he has to pay for the loan taken directly from the bank for buying that property, and now we get to see the whole picture of the interest paid for buying an apartment. In most cases, client pays the price of the interest (both sides interest) and the profit of the real estate developer. Therefore, there should be an alternative to the existing scheme of financing besides the current conventional one.

## Principles of banking and cooperative banking

Among the features of finance institutions is disbursement of loans to the recipients that are normally entrepreneurs and clients willing to get loans of different volumes. The loan normally is given for the purpose of new income generating project and business expansion or consumer loans. The focus here is business loans for which the terms and conditions of the loan are normally easy to understand and flexible, and they can be tailored[2] according to the needs of the clients. It is provided for short term and long term financing and repayments can be made on a monthly or even longer basis using the grace period as per the project needs. The procedures and processes of loan disbursements normally should be fast and easy. Additional capital can also be given after the full settlement of the previous loan.

There are several distinctions that distinguish Conventional financing from Cooperative financing. But there are also similarities; both conventional finance and Cooperative finance can mobilize external funds and saving of clients as their source of fund although the modes of using these funds would be different.[3]

## Cooperative financing instruments

The paper argues that Cooperative financing needs to consider financial instruments that are suitable with its concept. Understandably, Cooperative

[1] Referring to the final price of the property/apartment paid by client.

[2] Especially when financing has to do with agro loans, payment scheme is adjusted with grace period and structured payment scheme.

[3] Abdul Rahim Abdul Rahman, 'Cooperative Microfinance: A missing Component in Cooperative Banking, *Kyoto Bulletin of Cooperative Area studies, 1-2 (2007)*

financing products mostly are profit ventures, thus, by providing a portion of financing for the clients willing to buy properties for the first time without any credit history will shift the focus to encompass socially responsible financing.

This type of financing is considered a booster for economic development because it provides financing to some groups of people/entrepreneurs who have ideas and projects but are not considered credit-worthy for some financial institutions. It is compatible with the needs of some micro-entrepreneurs. And because it promotes entrepreneurship, expanding Cooperative financing could foster development under the right application. The following principles have great potentials to be advanced and adapted as Cooperative financing schemes:

**Partnership financing/investment**

Partnership (passive and active partnership) has the potential to be adapted as Cooperative finance scheme. Partnership is where the capital provider or any finance institution and the small entrepreneur become partners. The profits from the project are shared between capital provider and entrepreneur, but in case there is financial loss it will be borne or shared by the partners. This is due to the premise that an entrepreneur invests his capital (the expertise) on a trust basis; hence it is not liable for losses except in cases of misconduct. Negligence and breach of the terms of the contract, the entrepreneur becomes liable for the amount of capital[4]. This model (partnership financing model) to some extent is being practiced in Kosovo by some real estate developers as can be seen on the coming pages, although it is not well developed into financing/banking product.

**Trade finance**

Using the trade finance as a mode of financing requires the finance institution to acquire and purchase asset or business equipment then sells the asset to entrepreneur at mark-up. Repayments of the selling price will be paid on installment basis. The finance institution will become the owner of the asset until the full settlement. This scheme is the most appropriate scheme for purchasing business equipment. The benefit of this mode of financing is continuous monitoring, and entrepreneurs with a good reputation of repayment will be offered better conditions in the future.[5]

This is where a micro-entrepreneur enters into a sale and purchase agreement, or memorandum of understanding to purchase a specific kind of goods or equipment needed by the micro-entrepreneur with the finance institution. The finance institution then sells the goods to the entrepreneur at cost plus mark-up, and entrepreneur can pay back later in lump sum or by installments without the possibility of price change after the agreement if concluded by them.[6] This type of financing is worldly known as Islamic banking, and probably not very suitable for financing real estate as it

[4] Islam Hasani, *Ekonomia dhe Bankimi Islam: Koncepte Themelore*, (Prishtine: Dituria Islame, 2013) p.202.
[5] Ibid, p. 175.
[6] This model of financing is already in practice in many countries by Islamic banks and other financial institutions specialized in trade finance.

requires time and development but rather already produced goods such as home appliances and vehicles.

**Leasing**

Leasing by definition is a long term contract of rental subject to specified conditions as prescribed below. Unlike conventional finance lease, the lessor (Cooperative finance) not only owns the asset but takes the responsibility of monitoring the used of asset and discharges its responsibility to maintain and repair the asset in case of mechanical default that are not due to wear and tear. The finance institution should first purchase the asset prior to execution of a leasing contract. The bank takes possession of the assets and subsequently offers the asset for lease to customer. The bank then is responsible for the risks associated with the asset. This model is used not for leasing purposes only but also buying an asset need by the client. The transfer of ownership will take place at the end of the contract and pre-agreed between the lessor and lessee. There is nothing new in this mode of financing, leasing is already in practice but what makes it different as being proposed is the idea of making it more cooperative and not simply depending on financial lease which is focused completely in interest as a final result.[7] However, even though this model of leasing does not solely depend on interest but rather on some risk bearing and mark-up profit, still it is not the best example for real estate development projects but financing ready-made apartments can be applied. The examples below are the core discussion of the whole research.

**Diminishing Partnership**

This model is called Diminishing Partnership, the partnership is formed between the bank/financier and the client willing to purchase a house, it is called diminishing partnership because one partner's diminish as partnership goes on.

Besides the financial models/products as cooperative mode mentioned above which are currently in practice in some countries, this model (diminishing partnership) will be practiced soon in Kosovo by a Non-Bank Financial Institution[8]. The manuals and contracts involved have been prepared and approved by the institution. This model functions as follows:

First the client approaches the bank or any financial institution who agrees on this type of financing for the purchase of the property that he already identified; he agrees to invest a certain amount towards the purchase and applies to the bank for financing the balance amount. If the bank is satisfied about the title to the house and the future cash flow of the client, a Diminishing partnership agreement is created in terms of which the client and the bank become co- owners in the house on the basis of partnership. They both form a fund that is enough for buying that property where the client as the eventual owner has immediate rights to occupation. The two parties agree at the start that their

[7] Saiful Azhar Rosly, *Critical Issues on Islamic Banking and Financial Markets: Islamic Economics, Banking & Finance, Investments, Takaful and Financial Planning* (Kuala Lumpur: DINAMAS, 2005) p. 313.

[8] ProFinance Home Sh.A., is Non-Bank Financial institution registered and monitored by the Central Bank of

Kosovo.

respective shares in the property shall be pro-rata, concerning their contributions towards the purchase price paid to the vendor for example 80% to 20%it can be also other percentages.[9]

The parties also agree that during the course of their partnership, which has an agreed date of termination, the client will purchase the financier's share in the property in installments and for the price that the financier had paid for such share on the initial date of acquisition. As the client increases its share in the property, the bank's share correspondingly decreases by the same amount. In parallel to the agreement, the bank grants to the client a lease in respect of its share in the property. The lease is effective for as long as the bank has a share in the property.[10] The fact that the client is already living in the house, the bank can start taking rent for occupying the part in the bank's ownership from the first month when client is able to use the property for living in it.

The client will regularly pay the rentals and will also periodically purchase the bank's units of ownership by additional payments to the bank; the client will start paying the 80% of the actual price because that percentage is in the ownership of the bank and then the rental payment is reduced with the client's ownership increasing over a period of time. This process will continue until the bank's share of the ownership title in the house is completely transferred to the client. And if the client's financial situation allows him to buy more Units, the bank normally allows the purchase of the units and the rent gets decreased accordingly as to the remaining percentage of the shares.[11]

Using the above example would be more beneficial for the client and also more reasonable for the bank. For example, if the client after some time is not able buy units of ownership from the bank, he will continue paying the rent for the percentage he does not own. He will not be penalized by paying any extra amount for not paying the full installment amount as it would be the case in the conventional financial system. And if it comes to the point where the client cannot go any further with buying the shares and also paying rent and requests to stop the contract, then the bank starts the procedures for cancelling the contract and advertise and auction the apartment for sale. Whatever the price would be when selling the apartment, it will be shared between the partners (the bank and the client) at the actual shares they own, not the shares they had in the beginning[12]. The bank will also get the unpaid monthly rents until the time the contract was cancelled and nothing more than that. Spread of financial risk is more ethical in this model because both partners take some risk and not only the client. It is in the interest of the bank to promote the apartment and try to get

[9] Islam Hasani, 'Kontratat Hibrid ne Sistemin Financiar Islam' ,TAKVIM, (Prishtine: Dituria Islame, 2021) p.236

[10] Asyrah Wajdi Dusuki, Commodity Murabahah Programme (CMP): An innovative Approach to Liquidity Management. *Journal of Islamic Economics, Banking and Finance*, Volume 3. No. 1, 2007.

[11] Abdulkader Thomas, "Real Estate", *Structuring Islamic Finance Transactions*, eds. Abdulkader Thomas, Stella Cox & Bryan Kraty, (London: Euromoney Books, 2005) p.129

[12] It might be that by the time they are cancelling the contract the client has already bought 50% of the shares, and he will get 50% of the price of the amount when apartment was sold.

the best price when selling it because they will also benefit from selling it at a higher price.

**Cooperative financing model used for property financing in Kosovo**

There is a practice here in Kosovo used by some real estate developers to sell their newly or ongoing construction of the properties. This model is not what we see usually in conventional banking, they skip banks by enabling clients to buy or be partners with the real estate developers in the unit or apartment they intend to buy and is being practiced for at least 10 to 15 years and it is gradually increasing. It works as follows:

Real estate developers advertise that they have a new project for which they present all the licenses and construction permits and call for those who wish to join them at this phase by participating in financing the apartment they intend to buy in one of the two models:

**The first**, the client is given the chance to pay 80% of the total price at this stage and he gets discount for about 20-25% discount of the final price. The idea is that the client is financing his own apartment and takes some risk by paying in advance and for the risk bearing he is entitled to profit sharing as well by some financial reward for it.[13]There are advantages and disadvantages on this model as discussed below, but I believe that advantages are a lot more if this model is well structured and implemented correctly.

**The second**, the client is given the chance to pay at least 30% of the total price (market price) of the apartment and the rest will be paid in 10 years in monthly installments. The construction of that project is estimated to be completed in two years (plus minus 6 months depending on the project size). The client will start using the apartment once it is complete but will continue paying the installments for around 7 years. The logic of this idea is that real estate developers get some payment from the client whom they can use these payments for constructing the project and do not need to get loan from the banks for that amount, and until the project is complete they receive around 40 to 45% of the total price of the project. The advantage that the clients get from this model is that they also do not need to get loan from the bank for buying the apartment no interest charges are involved. In some contract samples of this model that I have seen is that there a clause in the contract stating that if at a later phase client wants to withdraw from the contract then 20% of the price paid until that time will be kept by the real estate developers.[14]

This practice as it is now, poses some financial risks for both parties. For example, there are cases where projects after getting all the papers done (construction permit and everything was ready for the kickoff) were delayed for very long time or even canceled because real estate company was faced with

[13] The contract regulated the rights and duties of the parties and what follows if one partner does not complete on time the obligations taken by signing the agreement.

[14] This is already being practiced, and it is considered part of the author's contribution to the development of this banking/financing product.

financial difficulties. Or, the client on the other side after making the first payments as down payment was not able to follow with the payments on the due dates. However, in order to mitigate the risks involved for the both sides this model should be structured into banking product where banks monitor the progress of the project and release the payment as per contract. For this activity banks should get their monitoring/administrative fee instead of financing them and get the interest. This model can be compared somehow to issuing an LC for the export/import companies where banks issue cash covered LC and get only fee for monitoring and securing the payment on one side and arrival of the goods for the other side.

## Conclusion

The paper reviews the concepts of banking, and argues that the main objective of this scheme economic empowerment of all players into the banking system. The initial idea of the bank to exist was saving purposes and mobilizing the savings of those who have excess funds and extending them to the investors. Various Cooperative financing schemes based on the concepts of partnership, trade finance and leasing have the salient features and characteristics that can contribute towards a more ethical economic and financial development of micro entrepreneurs and any client. Cooperative finance is argued as a missing component in the banking system used nowadays. Further studies are needed to examine this model and other possible structures and governance models so that Cooperative financing can effectively offer broader financing instruments and mitigate its inherent risks. The last two models are already in practice, but this requires some research and development in preparing more ground for making them well-structured and acceptable banking products. Needles to say, I do not pretend to have covered all aspects of these last two models, it is required to research and develop more the idea into more detailed procedures with less financial risk and more beneficial for the partners involved in the contract.

## References


1. Rahman, A., Rahim, A. (2007). ‘Cooperative Microfinance: A missing Component in Cooperative Banking, *Kyoto Bulletin of Cooperative Area studies,* No. 1-2.

2. Hasani, I. (2013). *Ekonomia dhe Bankimi Islam: Koncepte Themelore (Islamic Economics and Banking: Basic concepts)*, Prishtine: Dituria Islame.

3. Hasani, I. (2021). ‘Kontratat Hibrid ne Sistemin Financiar Islam’ (Hybrid contracts in Islamic Financial System),*TAKVIM*, Prishtine: Dituria Islame.

4. Heffernan, Sh. (2005). *Modern Banking*, London: John Wiley & Sons, Ltd.

5. Dusuki, A.W. (2007). Commodity Murabahah Programme (CMP): An innovative Approach to Liquidity Management. *Journal of Islamic Economics, Banking and Finance*, Volume 3. No. 1.

# Public space in the local neighbourhoods and age-friendly communities

**Boštjan Kerbler**

**Richard Sendi**

Urban Planning Institute of the Republic of Slovenia, Slovenia
bostjan.kerbler@uirs.si
richard.sendi@uirs.si

**Maša Filipovič Hrast**

University of Ljubljana, Faculty of Social Sciences, Slovenia
masa.filipovic@fdv.uni-lj.si

**Barbara Goličnik Marušić**

Urban Planning Institute of the Republic of Slovenia, Slovenia
barbara.golicnik@uirs.si

**Ajda Šeme**

seme.ajda@gmail.com

## Abstract

Age-friendly communities are places where older people are actively involved and valued. Their needs are supported with suitable infrastructure and services, and that also reduces the burdens of their caregivers. This topic is more and more important because we live in an era in which our society is rapidly ageing. World Health Organization projections show, that by the end of 2050, the number of older persons will be double compared to the number of older persons in 2019. According to World Health Organization older persons' needs should be emphasize since they are experiencing life-demanding changes in their personal lives, such as reduced financial income, health related problems, reduced capabilities, poor concentration, and age discrimination. Despite their reduced capabilities they prefer to stay at home for as long as possible and they are facing their problems better in the familiar surroundings of home and local environment. Living at home allows older people to maintain a sense of independence and privacy in a familiar setting where they stay more active and successfully perform their daily activities. In performing their daily activities in their local neighbourhoods, they are confronted with public space, where they often encounter different obstacles. Public space is, however, often shaped for the needs of young fit adults, and not for the elderly who are affected by the ageing process with different physical, sensory, and/or mental conditions. Common problems elderlies are facing in public spaces of the local neighbourhoods are uneven or steep paving, poor seating, bicycles on footpaths, changes in level, unclear signs, inadequate lighting, sudden and loud sounds that frighten them, heavy traffic, distant bus stops, lack of available services, fear of crime or of getting

lost. To help older adults to maintain their active lives societay should be aware of the problems they are facing, which could lead to the implementation of various measures. The quality of their lives could be improved with the safety, clarity, legibility, comfortability, and accessibility of public spaces. To reach this abstract guidance, concrete suggestions for urban improvements could be divided into four groups of most important measures. First, local shops and different services should be ensured for the elderly to enable them to stay socially active through informal social networks and formal organizations within their neighbourhoods. The second group of measures is about traffic concerns in their local environment. To keep elderly active and independent an adequate public transportation should be ensured. However, older persons are no longer able to drive, or they no longer feel capable of being able to drive. The last, but very important group of measures concern overall neighbourhood's attractiveness. Many studies show that most of the elderly prefer compact local neighbourhoods, with green areas and a variety of architectural styles, different playgrounds, shorter curved streets etc. All these elements are helpful to maintain the concentration of older people and encourage them to choose walking not only for pleasure and recreation but also instead of using means of transport. As a consequence of improvements in the built environment, researchers noticed strengthened social interactions among older people because they have more opportunities to interact with their companions. To become age-friendly communities for local neighbourhoods often is requires not only addressing the needs of the current older population but also thinking about the needs of future older residents since changes in the built environment often takes years before realization. For that reason, older adults should be involved into plan-making processes and their needs should be better considered and represented. Given the importance of public space in local neighbourhoods for the elderly, this paper aims to show which improvements in public space are needed to enhance older person's quality of life in their communities that are not defined as age-friendly yet. The presentation is based on an extended literature review and begins with the examination of changes in the lives of older people, and the importance of staying in their local environments in later life. Further a state-of-the-art on age-friendly communities and suggestions for improvements in a public space are presented, whereby improvements in the public space are linked with their importance for the health and social lives of the elderly.

Keywords: public space, age-friendly communities, local neighbourhoods, built environment, services.

## Introduction

According to Srna Mandič (2011), housing is clearly among the most important factors of quality of life and human welfare, which is recognized in both the social sciences (Erikson, 1993; Atkinson et al., 2002; Fahey et al., 2004; Domanski et al., 2006; Daly, 2007) and numerous international policy documents, which many authors draw attention to (Barlow & Duncan, 1994; Doling, 1999, 2006; Milligan, 2003). The role of housing in human welfare is also extremely variegated. Namely, housing has many characteristics and makes it possible to satisfy human needs. However, the living environment is not limited only to the dwelling unit, but also

covers the residential community or the local environment where the individual lives, and thus also the public space in this environment (Sugiyama et al., 2009). Esther Iecovich (2014) distinguishes between the following dimensions of such space: the physical dimension (home and neighbourhood), social dimension (relationships with others), emotional and psychological dimension (sense of belonging and attachment), and cultural dimension (connected with older people's values, norms, beliefs, ethnicity, and symbolic meanings). The concept of an age-friendly community deals with all these dimensions of the living environment.

This concept is important because our society is rapidly aging, but the elderly would like to remain or age in their home environment as long as possible (known as *aging in place*), where they can lead their lives as independently as possible with the best possible quality of life, which is also confirmed by several studies (Lawton et al., 1980; Barker & Prince, 1990; Gurney & Means, 1993; Gitlin, 2003; Michael et al., 2006; Mitchell & Burton, 2006; De Jong et al., 2012). As established by Jordana Maisel et al. (2008), independent life stimulates successful aging with improved health and life satisfaction and increases the self-esteem of the elderly, all of which can postpone their use of institutionalized care. Therefore, local environments, especially their public spaces, must be adapted to the needs of the elderly to ensure everyone a dignified—and, first and foremost, high-quality—life in old age and active integration into the local community.

So far, traditional supportive services have focused on promoting aging in place and optimizing wellbeing in later life for individuals, but age-friendly community initiatives suggest another approach that is deliberately influencing social and physical environments to benefit the elderly (Greenfield et al., 2015). This is important because age-friendly community initiatives have also developed guidelines on how an age-friendly community should be designed. Therefore, some age-friendly community initiatives are presented in this article, especially the World Health Organization's (WHO) global age-friendly city initiative and its characteristics for designing age-friendly communities in urban neighbourhoods. Above all, the provisions related to the needs of the elderly in public space are highlighted, which could be used as guidelines for adapting urban neighbourhoods to become age-friendly.

## The age-friendly community and its initiatives

*Age-friendly community* is a term that generally refers to a supportive environment in which older people are actively involved, valued, and supported with infrastructure and services that effectively accommodate their needs. Once such an environment is established, it allows residents to grow older within their families, neighbourhoods, and local society. Staying active contributes significantly to older people's quality of life and their health. Therefore, an age-friendly community needs to offer and develop opportunities for older residents to actively participate in both the social and built environments. For example, the social environment must provide reliable information about services to the elderly, while at the level of the built environment these services must be accessible and available within reasonable travel time, which increases the independence of the elderly. At the level of the built environment, neighbourhood safety increases older residents' culture of inclusion

and reduces their risk of isolation (Alley et al., 2007; World Health Organization, 2007; Biggs & Tinker, 2007; Fitzgerald & Caro, 2014; Greenfield et al., 2015; Steels, 2015). According to Dawn Alley et al. (2007: 1, 4) "age-prepared communities utilize community planning and advocacy to foster ageing in place. … In essence, an elderly-friendly community makes local resources more 'userfriendly' to older adults, so that services, programs, policies, and facilities maximize benefits to older adults and their families through convenience and support."

For establishing and coordinating age-friendly communities, age-friendly initiatives have been launched in past decades as organized and comprehensive efforts to improve localities for residents as they age (Greenfield, 2018). They have been applied to small places, such as neighbourhoods, and also large areas such as cities. Regardless of size, they involve the same starting point and the same ideas. The following terms are also used for similar initiatives according to the literature reviewed (see Buffel et al., 2014; Fitzgerald & Caro, 2014; Greenfield et al., 2015; Steels, 2015): *age-friendly city initiatives*, *liveable city/community initiatives*, *elder-friendly city/community initiatives*, *communities for all ages*, and *community aging initiatives*. All these terms derive from the ecological theory of aging, which connects individuals' wellbeing with their physical and social environment. Different terms for the same ideas are not problematic because they represent the same range of policies and initiatives emphasized by policymakers, local community programmes, and researchers (Steels, 2015). According to Emily A. Greenfield et al. (2015: 192–193), age-friendly community initiatives "use a variety of methods to influence local environments, such as by conducting needs assessments, forming coalitions, engaging in advocacy campaigns, developing interorganizational collaborations, and engaging community volunteers." Initiatives also provide guidelines for further development. For the effective implementation of age-friendly guidelines in the community, the various stakeholders involved include municipal governments, local service providers, transportation authorities, housing providers, and neighbourhood residents themselves.

Due to the importance of aging in urban neighbourhoods, various initiatives have been developed around the world with the aim of improving urban environments for the elderly. The most important starting point for these initiatives has been discussions on suitable places for aging, but some other characteristics have also played an important role in establishing them, such as demographic changes (population aging), the increasing urban population (urbanization), age-related issues (e.g., frailty, poor health, and reduced capabilities), poverty in old age (e.g., reduced income), and social challenges (e.g., age discrimination and isolation; Mitchell & Burton, 2006; Buffel et al., 2014). One significant age-friendly community initiative is the D4 Action Group on Age-Friendly Environments, established in 2012 by the European Commission. The main objective of this group is to bring together partners from all over Europe that are committed to implementing strategies to create age-friendly environments that support active and healthy aging of the European population (Fitzgerald & Caro, 2014; European Commission, 2021). There are also some examples of age-friendly initiatives that encourage communities to strengthen age-friendly features in the United States. The AdvantAge Initiative is a project that began in 1999. This initiative helps community-based organizations, foundations, and local and state governments measure their

communities' aging friendliness and prepare them for a growing older population that wishes to age in place (Fitzgerald & Caro, 2014; Center for Home Care Policy and Research VNSNY, 2021). The initiative Building Healthy Communities for Active Aging Award Program was launched a few years later, in 2002. Its principal goal is to raise awareness across the United States about healthy synergies that could be achieved when communities combine and implement the principles of smart growth with the concepts of active aging (Fitzgerald & Caro, 2014; United States Environmental Protection Agency, 2021). In the United States, the American Association of Retired Persons (AARP) Livable Communities Initiative also emerged, which has a very similar program as the previously mentioned initiatives (Fitzgerald & Caro, 2014; American Association of Retired Persons, 2021). Tine Buffel and Chris Phillipson (2018: 5–7) clearly summarize the differences of these initiatives: "Some models focus on adapting the physical infrastructure, for example through providing access to green spaces, promoting home adaptations, and enabling mobility and walkability, whilst others pay more attention towards social aspects of the environment by promoting inclusion, participation and social support. … A key feature of these age-friendly frameworks and models concerns the role of partnerships, including community participation and stakeholder involvement." This is also supported by Emily A. Greenfield et al. (2015: 196), who complement it with the following thought: "Regarding goals, some initiatives focus exclusively on older adults, while others have called for changes that are good for people of all ages."

Among all age-friendly initiatives, the WHO initiative is the best known and most influential in the world. It started dealing with the concept of active aging during the 1990s and early 2000s. An additional encouragement for developing this initiative occurred in 1999. The United Nations (UN), however, declared that year as "the year of older people". The WHO and UN together designed policies and programs that have defined ways to maintain active aging with regard to social, cultural, spiritual, and economic aspects, and they have also carried out a range of interventions at the level of the social and physical environment. As part of the WHO, Alexandre Kalache and Louise Plouffe started studying the experiences of older people living in urban environments, and the findings of their research led to the launch of the Global Age-Friendly Cities Project in 2005, starting at the opening session of the 18th International Association of Gerontology & Geriatrics world congress in Rio de Janeiro. The most important result of this project is the publication *Global Age-Friendly Cities: A Guide*, created in collaboration with focus groups in thirty-three cities in all WHO regions. They used a bottom-up participatory approach and involved a variety of people age sixty and older in the focus groups as the main source of information, and caregivers and service providers in the public, volunteer, and private sectors, based on their interaction with older people. They formed 158 such groups, involving 1,485 participants. The focus group participants were asked to describe the advantages and barriers they experience in eight areas of living in cities to inform government policies. The results from the focus groups led to the development of the guide and to a set of age-friendly city checklists that represent the views on a city expressed by the focus group participants worldwide. The purpose of the guide is to help cities and communities create a friendlier environment for older people. Since its launch, the project has experienced a rapid increase in membership, reaching over five hundred cities and

communities across the world (World Health Organization, 2007; Buffel et al., 2014; Buffel & Phillipson, 2018).

### Age-friendly characteristics of neighbourhoods' public spaces

Public space is space in which social processes and public life take place. Joseph De Chiara et al. (1995) describe public spaces (only) as large green areas that allow informal games, various activities, and social contact, while at the same time providing a sense of openness. They also argue that these areas should provide for a wide range of activities that can take place without interruption by various age groups or other groups and at various times. Their layout must therefore provide an attractive and safe environment that satisfies all the residents (i.e., provides comfortable living in the neighbourhood). Well-planned, organized, managed, used, and maintained public spaces thus play a key role in creating an attractive residential environment and can significantly contribute to achieving a sense of strong mutual connection within the neighbourhood or community among the residents (De Chiara et al., 1995; Sendi, 2007). If these spaces disappear, interaction and connections among older people also disappear. Spaces for socializing or gathering thus have an important impact on the further development of the community and its social capital. Studies (e.g., Henning & Lieberg, 1996; Guest & Wierzbicki, 1999; Filipovič, 2007) also show that the elderly tend to connect with their neighbours more than the younger or middle-aged generation, and they also have more intensive contact with them and more often exchange various forms of assistance. Richard Sendi (2007) further claims that the public space in residential neighbourhoods is one of the main elements that affect a neighbourhood's reputation and consequently also residents' satisfaction with the quality of life in a particular neighbourhood. He believes that the shape and layout of public space influence the image that the neighbourhood conveys to its residents and others.

However, public space is often shaped for the needs of young fit adults and not for the elderly, who are affected by the aging process with different physical, sensory, and/or mental conditions (Mitchell et al., 2003; Mitchell & Burton, 2006). The elderly, especially those with mobility impairments, are limited by various architectural obstacles in their living environment that impede access to public space, which is often a result of inappropriate planning. The most common architectural obstacles that hinder their movement in public space include stairs and fenced open and green areas (Sendi, 2007). Barriers in the physical environment very often force older residents to leave their communities. The WHO guide for age-friendly cities therefore suggests how an age-friendly city should adapt its structures and services to be accessible to and inclusive of older people with varying needs and capacities. Among eight aspects, the first three relate to a city's built environment, one of which is outdoor spaces and buildings. The outside environment and public buildings have a major impact on older people's mobility, independence, and quality of life, and they affect their ability to age in place. According to the WHO guide, there are eleven characteristics of outdoor public spaces that contribute to age-friendliness in urban communities: 1) a pleasant and clean environment, 2) green spaces, 3) availability of seating areas, 4) pavements, 5) pedestrian crossings, 6) accessibility, 7) a secure

environment, 8) walkways and cycle paths, 9) accessible buildings, 10) adequate public toilets, and 11) good customer service.

A pleasant and clean environment in the neighbourhood is one of the important characteristics that influence its age-friendliness and use of its public places. It should have enforced regulations for limiting noise levels and unpleasant or harmful public places. Neighbourhood attractiveness, such as streets and paths with a variety of architectural styles, mixed use of space, and so on also encourage older residents to use the neighbourhood's public spaces and help them maintain their concentration. A pleasant and clean environment in a neighbourhood offers good opportunities for social interaction with friends and neighbours because encounters near people's homes are an important part of their social network. Playgrounds also contribute to a pleasant home environment and to greater opportunities for social contact because the elderly often take care of their grandchildren. To address problems regarding cleanliness, older people are willing to participate in organized neighbourhood campaigns, such as park clean-up days, litter patrols, and community gardens to improve the neighbourhood's attractiveness and pleasantness (Michael et al., 2006; Mitchell & Burton, 2006; World Health Organization, 2007; Sugiyama & Ward Thompson, 2008; Sugiyama et al., 2009; Bigonnesse et al., 2014).

According to Astrid Kemperman and Harry Timmermans (2014), green infrastructure in the living environment makes an essential contribution to urban residents' quality of life (see also Bedimo-Rung et al., 2005; Kaczynski & Henderson, 2007), particularly for elderly people, who on average are less mobile and have more limited activity spaces than other age groups (Lavery et al., 1996; Rantanen et al., 2012; Schwanen et al., 2012; Schwanen & Paez, 2010). Facilities in the direct living environment of elderly people, such as green spaces, are therefore important to support their needs (Kweon et al., 1998; Maas et al., 2006; Orsega-Smith et al., 2004). Sjerp de Vries (2003) argued that residents of areas with good green infrastructure demonstrated increased longevity, a higher level of physical activity, and better health and wellbeing, especially among elderly citizens. Among other things, green spaces also support social contact in the neighbourhood. However, safety and maintenance of green spaces are also important; high-quality green spaces support social contact between neighbours and strengthen communities, especially for the aging population (Kemperman & Timmermans, 2014). Moreover, Robert Home et al. (2012) found that elderly people are motivated to visit nearby green spaces by the wish to seek social contact. It is therefore important to consider green infrastructure holistically and at the landscape scale as well as at the individual site scale. Integration of urban green space with the built environment that surrounds it is crucially important if benefits are to be maximized. Green space, whether connected or not, must be seen as providing facilities or services for the people who live among it, especially the elderly. Its real potential will only be realized if activities or operations undertaken in the green space are supported by the entire local community (Kerbler, 2015).

Another age-friendly characteristic that encourages older people's activity (mostly walking) in urban neighbourhoods is the availability of seating areas. Benches offer the possibility to take a break from a journey, to rest, and to retreat from crowds and

traffic, which are often tiring for the elderly. It is important for benches to be frequent in all of a neighbourhood's public spaces (parks, transport stops, next to walkways, in front of public buildings and customer services, etc.), spaced at regular intervals. They should have adequate shelter for protection from summer heat and sun as well as other unpleasant weather. Benches must be well maintained and patrolled to ensure safe access by all. They should be carefully placed in the neighbourhood because otherwise they could also represent an obstacle in space (Mitchell et al., 2003; World Health Organization, 2007; Sugiyama & Ward Thompson, 2008; Bigonnesse et al., 2014).

Pavements and walkways are important elements of the built environment in urban neighbourhoods. Their condition has an obvious impact on the ability to walk in the local area Pavements and walkways that are narrow, uneven, or cracked, have high curbs, are congested, or have obstructions present potential hazards and affect older people's ability to walk around the neighbourhood. Bad weather can also make a neighbourhood difficult to move through, and therefore winter services must be always ready to clear and grit icy pavements and walking paths in the winter. Pavements and walkways could be improved by replacing the surfaces with smooth and non-slippery materials, width adjustments, lowering the curbs, and marking access priority for pedestrians. Changes in level could be solved by installing ramps. There must also be no parked cars or other obstacles that prevent smooth movement on the sidewalks and paths, such street vendors, flower planters, and so on. Cycle paths should be separated and clearly marked, which means that there should be two pathways—one for cyclists and one for pedestrians. As already mentioned, comfortable places to sit and rest are also important to make walkways suitable for the elderly (Mitchell & Burton, 2006; World Health Organization, 2007; Sugiyama & Ward Thompson, 2008; Sugiyama et al., 2009).

For a neighbourhood to become age-friendly, attention needs to be paid to traffic regulations. This especially concerns pedestrian crossings because the elderly often say that traffic lights change too quickly at many intersections. Another concern is that drivers fail to follow traffic signals and do not yield to pedestrians. The noise and speed of traffic can also be problematic because they can affect older people's ability to hear effectively and to respond quickly. Older people have also described roads as unsafe and unpleasant, which is a reason that they fear going out, which could lead to social isolation. Neighbourhoods should therefore have 1) regulated parking adapted for pedestrians, especially for the elderly; 2) pedestrian crossing lights that allow sufficient time for older people to cross the road and that have visual and audio signals; 3) roads with well-designed and appropriately placed physical structures, such as traffic islands, overpasses, or underpasses, to assist older pedestrians in crossing busy roads; and 4) strict enforcement of traffic rules and regulations, with drivers yielding to pedestrians (Mitchell et al., 2003; World Health Organization, 2007; Michael et al., 2006; Mitchell & Burton, 2006).

Concerns about security are expressed nearly everywhere, including matters such as street lighting, violence, crime, drugs, and homelessness in public places. Feeling secure in one's living environment strongly affects people's willingness to move around in the neighbourhood, which in turn affects their independence, social integration, and emotional wellbeing. A sense of security in a public space is

especially important for the elderly, and it is commonly associated with the familiarity and clarity of public spaces. Older people prefer to avoid using public spaces after dark because of concerns about personal safety from crime, groups of youth, and homeless people. Lighting, police patrols, enforcement of bylaws, surveillance cameras, and support for community and personal safety initiatives in the neighbourhood increases the feeling of security among the elderly (Mitchell et al., 2003; Mitchell & Burton, 2006; World Health Organization, 2007; Sugiyama & Ward Thompson, 2008; Bigonnesse et al., 2014).

For aging in place, access to services within the local neighbourhood is very important. Local shops and services provide older adults with places to walk, meet others, and stay active without a car. Therefore, neighbourhoods with a variety of services available that consider older people's needs are also considered age-friendly. All services should be well marked with labels and signposts that clearly and unambiguously lead each person, especially older ones, to the place they are located. A very commonly identified problem in residential neighbourhoods is the disappearance of local shops, specialized stores, and other services (post offices, banks, private service providers such as shoemakers, hairdressers, etc.). With their closure, older people lose a potential source of social contact and the feeling of independence. They are required to travel further to other part of their cities. However, this is often difficult or even impossible due to the lack of (adequate) public transport services, poor connections or frequency of the transport, the cost of public transport, inappropriate public means of transport, insensitivity of bus drivers (e.g., drivers not waiting for older people to sit down before starting), crowded public transport, the location of transport stops, and poor information on transport options and timelines. It often happens that the rare services that remain in certain residential neighbourhoods are often of poorer quality, and, due to limited capacity, residents have to wait longer (in queues) to perform the desired service. This particularly affects older residents of neighbourhoods. In some neighbourhoods, services are not available due to legislation that does not allow commercial activities in a residential environment, and therefore it is important to anticipate mixed land use in advance. Services should be clustered, located close to where older people live, and easily accessible (e.g., located on the ground floor). There should also be special customer service arrangements for older people, such as separate queues or service counters for older people (Michael et al., 2006; Mitchell & Burton, 2006; World Health Organization, 2007; Bigonnesse et al., 2014).

Public toilets are generally regarded as an important age-friendly characteristic of the built environment. They should be conveniently located (e.g., in parks and near walkways) in neighbourhoods, clean, well maintained, well signed, and easily accessible for people with varying abilities (World Health Organization, 2007). Gail Knight and Jo-Anne Bichard (2011) explained the importance of public toilets with a statistical survey proving that the fear of incontinence is immediately behind the fear of dementia. As much as eighty per cent of the elderly have a difficult time finding a toilet in a public space, and due to frequent problems with incontinence this could be the main reason stopping them from leaving the home and a serious barrier to wider participation in public life. Numerous studies have been conducted, listing the following among the important functionalities of public toilets: high-seat toilets, grab bars, wide enough partitions, easy locking mechanisms, and frequent cleaning

(Greed, 1996, 2006; Molenbroek et al., 2001; Hanson et al., 2007; Bichard & Knight, 2012).

Even if a particular neighbourhood has all the elements of an age-friendly community, it does not achieve this if full accessibility to all these elements is not ensured. Studies related to wellbeing, health, and the environment indicate that accessibility positively influences healthy life expectancy because accessible neighbourhoods support mobility, daily activities, and social participation in old age (Iwarsson & Ståhl, 2003; Tomsone et al., 2018). On the other hand, environmental barriers could restrict possibilities to access and use the neighbourhood's public space and lead to inactivity among older residents. Low frequency of going outdoors is associated with depression, low cognition, and increased mortality risk (Rantakokko et al., 2013). Accessibility could therefore be defined "as the relationship between a person's functional capacity and the prevalence of physical environmental barriers in the environment" (Tomsone et al., 2018: 2). Thus, physical accessibility to all outdoor elements presented in this article (e.g., a pleasant and clean environment, green infrastructure, seating areas, pavements and walkways, services, and public toilets) should be a basis for designing a public space.

## Conclusions

The study presented in this article has described the importance of the built environment, especially public space in neighbourhoods, for older residents' quality of life. At the global level, important steps have been taken in disseminating this knowledge because different age-friendly initiatives have been established in the world. Above all, the greatest achievement can be attributed to the WHO campaign for global age-friendly cities. The first success of such initiatives is the visibility of their attitudes within urban planning, especially with respect to redesigning outdoor spaces to accommodate the needs of the increasing number of older people. Organizations and networks have also recognized the importance of population aging in the urban environment. They are important above all in encouraging age-friendly initiatives at the national, regional, and local levels, as well as empowering older people within their neighbourhoods and spreading information about age-friendly communities (Buffel et al., 2014; Steels, 2015; Buffel & Phillipson, 2018).

Age-friendly initiatives have also encouraged cooperation among public health professionals, architects, and urban design professionals over the past decade. This cooperation is very important because lifelong changes in the built environment can be reached only together with the guidance of similar goals (Fitzgerald & Caro, 2014). This meaning is described well by Dawn Alley et al. (2007: 13–14), who pointed out that "because changes in the built environment can require years to enact, planning is an essential part of creating change in community environments. Planning makes a difference in how services are delivered and how clients access them." One result of this cooperation during the past decades is the general awareness that an age-friendly community is in fact an "all-ages community"—appropriate for all, and not only for older people (Fitzgerald & Caro, 2014). Therefore, one can fully agree with the opinion of Dawn Alley et al. (2007: 4), who said: "An elder-friendly community, however, is not only for the retired or the frail; it provides a continuum of support for residents of all ages and all levels of ability."

The findings presented in this article could be used as a starting point for new research and to help address the constraints that are still present despite obvious progress. Therefore, a three-year project started in September 2020 titled Public Space for the Needs of the Elderly in Large Housing Estates in Slovenia, which is financially supported by the Slovenian Research Agency.[1] The main objective of the project is to define the key elements of public space in large housing estates regarding the needs of the elderly to remain full members of the community for as long as possible and thus be actively involved in social life in their neighbourhoods. This article is preparation for empirical research that will be conducted in the second work package. The characteristics of the WHO initiative presented here have been used to prepare surveys and focus groups, which will be conducted among older residents in various residential neighbourhoods in Slovenian cities. After the empirical research has been carried out, detailed analysis and interpretation of quantitative and qualitative data is planned. The final goal of the project (and all the work packages together) is to prepare strategic guidelines and recommendations for renovating public space in urban neighbourhoods to become age-friendly communities.

## Acknowledgments

The research was financially supported by ARRS (Javna agencija za raziskovalno dejavnost Republike Slovenije / Slovenian Research Agency), grant numbers J5-2568.

## References

Alley, D., Liebig, P., Pynoos, J., Banerjee, T. & In, H. C. (2007) Creating elder-friendly communities: Preparations for an aging society. *Journal of Gerontological Social Work*, 49(1–2), pp. 1–18.

American Association of Retired Persons (2021) *AARP livable communities: Our work*. Available at: https://www.aarp.org/livable-communities/about/ (accessed 27 Aug. 2021).

Atkinson, T., Cantillon, B., Marlier, E. & Nolan, B. (2002) *Social indicators: The EU and social inclusion*. Oxford, Oxford University Press.

Barker, P. M. & Prince, M. J. (1990) Supportive housing preferences among the elderly. *Journal of Housing for Elderly*, 7(1), pp. 5–23.

Barlow, J. & Duncan, S. (1994) *Success and failure in housing provision: European systems compared (policy, planning and critical theory)*. Trowbridge, UK, Pergamon Press.

Bedimo-Rung, A. L., Mowen, A. J. & Cohen, D. A. (2005) Significance of parks to physical activity and public health: A conceptual model. *American Journal of Preventive Medicine*, 28(2S2), pp. 159–168.

Bichard, J.-A. & Knight, G. (2012) Improving public services through open data: Public toilets. *Municipal Engineer*, 165, pp. 157–165.

Biggs, S. & Tinker, A. (2007) *What makes a city age-friendly? London's contribution to the World Health Organization's Age-Friendly Cities project*. London, Help the Aged.

Bigonnesse, C. Beaulieu, M., Garoh, S. & Fraser, S. (2014) Meaning of home in later life as a concept to understand older adults' housing needs: Results from the 7 age-friendly cities pilot project in Québec. *Journal of Housing for the Elderly*, 28(4), pp. 357–382.

Buffel, T., McGarry, P., Phillipson, C., De Donder, L., Dury, S., De Witte, N. et al. (2014) Developing age-friendly cities: Case studies from Brussels and Manchester and implications for policy and practice. *Journal of Ageing & Social Policy*, 26(1–2), pp. 52–72.

Buffel, T. & Phillipson, C. (2018) A manifesto for the age-friendly movement: Developing a new urban agenda. *Journal of Ageing & Social Policy*, 30(2), pp. 173–192.

Centre for Home Care Policy and Research VNSNY (2021) *The AdvantAge Initiative*. Available at: https://apps.vnsny.org/advantage/advantage.html (accessed 27 Aug. 2021).

Daly, H. E. (2007) *Ecological economics and sustainable development: Selected essays of Herman Daly*. Cheltenham, UK, Edward Elgar Publishing Limited.

De Chiara, J., Panero, J. & Zelnik, M. (eds.) (1995) *Time-saver standards for housing and residential development*. New York, McGraw-Hill.

De Jong, P., Rouwendal, J., van Hattum, P. & Brouwer, A. (2012) *Housing preferences of an ageing population: Investigation in the diversity among Dutch older adults*. Netspar discussion paper no. 07/2012-024.

De Vries, S., Verheij, R. A., Groenewegen, P. P. & Spreeuwenberg, P. (2003) Natural environments – healthy environments? An exploratory analysis of the relationship between greenspace and health. *Environment and Planning A*, 35(10), pp. 1717–1731.

Doling, J. (1999) De-commodification and welfare: Evaluating housing systems. *Housing, Theory and Society*, 16, pp. 156–164.

Doling, J. (2006) A European housing policy? *International Journal of Housing Policy*, 6(3), pp. 335–349.

Domanski, H., Ostrowska, A., Przybysz, D., Romaniuk, A. & Kreiger, H. (2006) *First European quality of life survey: Social dimensions of housing*. Dublin, European Foundation for the Improvement of Living and Working Conditions.

Erikson, R. (1993) Description of inequality: The Swedish approach to welfare research. In: Craven Nussbaum, M. & Sen, K. A. (eds.) *The quality of life*, pp. 67–83. Oxford, Oxford University Press.

European Commission (2021) *European innovation partnership on active and healthy ageing*. Available at: https://ec.europa.eu/eip/ageing/actiongroup/index/d4_en.html (accessed 27 Aug. 2021).

Fahey, T., Nolan, B. & Mâitre, B. (2004) Housing expenditures and income poverty in EU countries. *Journal of Social Policy*, 33(3), pp. 437–454.

Filipovič Hrast, M. (2007) Prostorska determiniranost omrežij starejših in vloga sosedov v časovni perspektivi. *Teorija in praksa*, 44(1–2), pp. 298–316.

Fitzgerald, K. G. & Caro, F. G. (2014) An overview of ageing-friendly cities and communities around the world. *Journal of Ageing & Social Policy*, 26(1–2), pp. 1–18.

Gitlin, L. N. (2003) Conducting research on home environments: Lessons learned and new directions. *The Gerontologist*, 43(5), pp. 628–637.

Greed, C. (1996) Planning for women and other disenabled groups. *Environment and Planning A*, 28, pp. 573–588.

Greed, C. (2006) The role of the public toilet: Pathogen transmitter or health facilitator? *Building Services Engineering Research Technology*, 27(2), pp. 127–139.

Greenfield, A. E., Oberlink, M., Scharlach, A. E., Neal, M. & Stafford, P. B. (2015) Age-friendly community initiatives: Conceptual issues and key questions. *The Gerontologist*, 55(2), pp. 191–198.

Greenfield, E. A. (2018) Age-friendly initiatives, social inequalities, and spatial justice. *Hastings Center Report*, 48(3), pp. S41–S45.

Guest, A. M. & Wierzbicki, S. K. (1999) Social ties at the neighborhood level. Two decades of GSS evidence. *Urban Affairs Review*, 35(1), pp. 92–111.

Gurney, C. & Means, R. (1993) The meaning of home in later life. In: Arber, S. & Evandrou, M. (eds.) *Ageing, independence and the life course*, pp. 119–131. London, Jessica Kingsley Publishers.

Hanson, J., Bichard, J. & Greed, C. (2007) *The accessible toilet resource*. London, University College London.

Henning, C. & Lieberg, M. (1996) Strong ties or weak ties? Neighbourhood networks in a new perspective. *Scandinavian Housing & Planning Research*, 13, pp. 3–26.

Home, R., Hunziker, M. & Bauer, N. (2012) Psychosocial outcomes as motivators for visiting nearby urban green spaces. *Leisure Sciences*, 34(4), pp. 350–365.

Iecovich, E. (2014) Ageing in place: From theory to practice. *Anthropological Notebooks*, 20(1), pp. 21–32.

Iwarsson, S. & Ståhl, A. (2003) Accessibility, usability and universal design – Positioning and definition of concepts describing person-environment relationships. *Disability and Rehabilitation*, 25(2), pp. 57–66.

Kaczynski, A. T. & Henderson, K. A. (2007) Environmental correlates of physical activity: A review of evidence about parks and recreation. *Leisure Sciences*, 29(4), pp. 315–354.

Kemperman, A. & Timmermans, H. (2014) Green spaces in the direct living environment and social contacts of the aging population. *Landscape and Urban Planning*, 129, pp. 44–54.

Kerbler, B. (2015) Starajoča se mesta in urbani razvoj / Ageing cities and urban development. In: Gams, M. & Malačič, J. (eds.) *Soočanje z demografskimi izzivi / Facing demographic challenges*, pp. 27–30. Ljubljana, Institut Jožef Stefan.

Knight, G. & Bichard, J.-A. (2011) *Publicly accessible toilets: An inclusive design guide*. London, Helen Hamlyn Centre for Design.

Kweon, B. S., Sullivan, W. C. & Wiley, A. (1998) Green common spaces and the social integration of inner-city older adults. *Environment and Behavior*, 30, pp. 823–858.

Lavery, I., Davey, S., Woodside, A. & Ewart, K. (1996) The vital role of street design and management in reducing barriers to older people's mobility. *Landscape and Urban Planning*, 35, pp. 181–192.

Lawton, M. P., Nahemow, L. & Yeh, T. (1980) Neighbourhood environment and the wellbeing of older tenants in planned housing. *International Journal of Aging and Human Development*, 11(3), pp. 211–227.

Maas, J., Verheij, R. A., Groenewegen, P. P., de Vries, S. & Spreeuwenberg, P. (2006) Green space, urbanity and health: How strong is the relation? *Journal of Epidemiology and Community Health*, 60(7), pp. 587–592.

Maisel, J., Smith, E. & Steinfeld, E. (2008) *Increasing home access: Designing for visitability*. Washington, DC, Center for Inclusive Design and Environmental Access.

Mandič, S. (2011) Stanovanje in blaginja starejših: Primerjava Slovenije z izbranimi evropskimi državami. In: Mandič, S. & Filipovič Hrast, M. (eds.) *Blaginja pod pritiski demografskih sprememb*, pp. 85–105. Ljubljana, University of Ljubljana, Faculty for Social Sciences.

Michael, Y. L., Green, M. K. & Farquhar, S. A. (2006) Neighborhood design and active aging. *Health and Place*, 12, pp. 734–740.

Milligan, V. R. (2003) *How different? Comparing housing policies and housing affordability consequences for low-income households in Australia and the Netherlands*. Utrecht, Utrecht University.

Mitchell, L. & Burton, E. (2006) Neighbourhoods for life: Designing dementia-friendly outdoor environments. *Quality in Ageing: Policy*, *Practice and Research*, 7(1), pp. 26–33.

Mitchell, L., Burton, E. & Raman, S. (2003) Making the outside world dementia-friendly: Design issues and considerations. *Environment and Planning B: Planning and Design*, 30, pp. 605–632.

Molenbroek, J. F. M., Mantas, J. & de Bruin, R. (eds.) (2011) *A friendly rest room: Developing toilets of the future for disabled and elderly people*. Amsterdam, IOS Press BV.

Orsega-Smith, E., Mowen, A. J., Payne, L. L. & Godbey, G. (2004) The interaction of stress and park use on psycho-physiological health in older adults. *Journal of Leisure Research*, 36(2), pp. 232–256.

Rantakokko, M., Törmäkangas, T., Rantanen, T., Haak, M. & Iwarsson, S. (2013) Environmental barriers, person-environment fit and mortality among community-dwelling very old people. *BMC Public Health*, 13(783), pp. 1–8.

Rantanen, T., Portegijs, E., Viljanen, A., Eronen, J., Saajanaho, M., Tsai, L. et al. (2012) Individual and environmental factors underlying life space of older people: Study protocol and design of a cohort study on life-space mobility in old age (LISPE). *BMC Public Health*, 12: 1018.

Schwanen, T., Hardill, I. & Lucas, S. (2012) Spatialities of ageing: The co-construction and co-evaluation of old age and space. *Geoforum*, 43, pp. 1291–1295

Schwanen, T. & Paez, A. (2010) The mobility of older people: An introduction. *Journal of Transport Geography*, 18(5), pp. 591–595.

Sendi, R. (2007) Izboljševanje javnih prostorov. In: van Kempen, R, Murie, A., Knorr-Siedow, T. & Tosics, I. (eds.) *Regeneracija velikih stanovanjskih sosesk v Evropi*: *Priročnik za boljšo prakso*, pp. 115–125. Ljubljana, Urban Planning Institute of the Republic of Slovenia.

Steels, S. (2015) Key characteristics of age-friendly cities and communities: A review. *Cities*, 47, pp. 45–52.

Sugiyama, T. & Ward Thompson, C. (2008) Associations between characteristics of neighbourhood open space and older people's walking. *Urban Forestry Urban Greening*, 7(1), pp. 41–51.

Sugiyama, T., Ward Thompson, C. & Alves, S. (2009) Associations between neighborhood open space attributes and quality of life for older people in Britain. *Environment and Behavior*, 41(1), pp. 3–21.

Tomsone, S., Saukuma, L., Liepina Z. & Zalkalns, J. (2018) Accessibility problems in home environment for seniors in Latvia: Experience from the research project innovAge (WP2). *SHS Web of Conferences*, 40: 03004.

United States Environmental Protection Agency (2021) *Building Healthy Communities for Active Aging Award Program*. Available at: https://www.epa.gov/ (accessed 27 Aug. 2021).

World Health Organization (2007) *Global age-friendly cities: A guide*. Geneva.

# Work from Hotels: is Hybrid the Future?

**Hester van Sprang**

**Brenda Groen**

Saxion University of Applied Sciences, The Netherlands
h.vansprang@saxion.nl

## Abstract

Already before but especially during the Covid-19 pandemic, working remotely and working from home increased. However, not every knowledge workers can and wants to work from home. Before the crisis, e.g. business travellers, independent professionals, small business, freelancers already looked for flexible workspace. This group has now been joined by those who look for an alternative to working from home. This provides opportunities for coworking spaces and organisations that traditionally are not focussed on providing workplace: hotels. Besides hospitality, they may also offer workplaces: hybrid hospitality. This chapter discusses what options there are in the market regarding alternative workplaces. It examines coworking spaces, working-from-hotels, and hybrid hospitality. Furthermore, the chapter discusses what hybrid means, as it may be diversification of the offer, using existing rooms for another purpose, and intensifying space use by enabling an easy conversion of a room depending on the function needed. Furthermore, the chapter discusses the hybrid trend for hotels is there to stay.

Keywords: hospitality industry, remote working, flexible offices, coworking, hotels, work from hotels, hybrid hospitality, business models, resilience.

## Introduction

The COVID-19 pandemic has resulted in a dramatic drop in occupancy in hotels in the major cities. Due to travel restrictions, tourists cancelled holidays, international business travellers switched to online meetings, and parties, events and conferences were either postponed or became online events. Organisations sent their knowledge workers home, leading to a surge in online working. Working from home became more feasible than organisations ever imagined, and individual workers experienced the benefits (and the downsides) of working from home.

But every crisis offers new opportunities. Major hotel chains were quick to innovate and recognised the opportunity to bring back some business to their hotels, by catering to those workers who find themselves needing an alternative to the "home" in "work from home. Hyatt was first out of the gate with its ‘Work from Hyatt’ program, and then Marriott and Hilton followed with packages of their own, from day-passes to "workstations" in resorts. Some hotel groups offer guest rooms as makeshift daytime offices; other hoteliers offer quarantine packages to individuals who need

to isolate themselves, have planned a staycation or are working from home indefinitely. Thus, a new addition to the as-a-service workspace market: Work-From-Hotel (WFH) is a hybrid between leisure and work.

Whereas for traditional hotels that entered this track, this was a response to the crisis, innovative brands, like CitizenM, Zoku and TheStudentHotel, already catered for this group before the pandemic. These hybrid hotels focus on business nomads, people that have made working anywhere anytime into a lifestyle. On top of the traditional offer of lodgings, food & beverage, they offer a place for social and cultural exchange with likeminded people in a setting of elevated hospitality (see 6: hybrid hospitality). They blend work, home and leisure, blurring the boundaries between the three. Why go to a traditional office if hotels, experts in hospitality, offer you fun, a flexible office, in, if necessary, a place to stay away from home?

In the contemporary, globally interconnected, continually moving and accelerating world, hospitality and "feeling welcomed" become central themes of our daily lives. The office is no longer the only place for (knowledge) work, the home is no longer our central focus of living, and hotels, cafes and restaurant no longer only serve as a place to eat, sleep and relax. We increasingly dwell in collective and shared spaces for progressively shortened and discontinuous times, and these places may offer a combination of functions (Scullica & Eleganti, 2020). A building's facade no longer tells you what it is for, as innovative entrepreneurs cleverly developed mixed-use properties previously dedicated to one kind of use only.

To what extent may hotels profit from this development? Airbnb disrupted their hotel market by turning private homes into hotels, could hotels and hybrids do the same to the (flexible) office market by offering flexible <u>and</u> hospitable workplaces?

**Workplace is not limited to traditional offices**

Back in 2013, FMN and CoreNet Global predicted that by 2020 the work environment would no longer be limited to the traditional office but would exceed building boundaries and includes multifunctional areas that combine work, housing and leisure (FMN & CoreNet Global, 2013, p. 6). In the same period, Termaat, Van Sprang & Groen (2014) identified the future potential of five workspace concepts based on a two-year study into new workspaces' business models:

1. Club: organisations' headquarters aimed at organisations' core business; internal focus, facilitating collaboration and knowledge sharing (part of former traditional office).
2. Campus: a collection of offices centred around a Club, focussed on task performance (former traditional office).
3. Hub: regional office for short/mid-term use of space, focusing on task performance (solo or team). Compared to the former satellite concept in 2013, this concept is more user-centred, and facilities possibly shared with other (external) companies to improve occupancy rates.
4. Coworking space: regional work and meeting space (formerly known as 'third space'), commercial short/mid-term term rent of workspace, added value: high accessibility and network centred.

5. Home-office (as an explicit place of work): since 2015, the ‘hoffice’ concept started, where people, like in coworking spaces, work together, in members’ homes (Rossitto and Lampinen, 2018).

All but the home office and 'hoffice' have a business model. Now, in 2021, we can conclude that these business models for workspace have become omnipresent. Coworking spaces are booming (Ng, 2016; Deskmag, 2019). The flexible space sector has accounted for a substantial share of net absorption in global gateway cities in recent years (JLL, 2020). One of the driving forces is the changing labour-market, with a growing number of independent professionals and distributed work. The Global Coworking Growth Study 2020 estimates the number of coworking spaces to reach 40.000 by 2024, with 5 million users globally, almost doubling the 2020 numbers.

As the above shows, the commercial real estate office market underwent rapid changes since 2014, with the transition from ownership to availability for end-users as an underlying core theme. Rosa (2010, cited in Scullica & Elgin, 2020) defines three distinct categories—technological acceleration, acceleration of social change and acceleration of the life rhythms—that have completely transformed the perception and organisation of space and time in collective life. New lifestyles based on work flexibility, a temporariness of interpersonal relationships, frequent travel and discontinuity of living have repercussions on the spaces and the ways they are operated.

**The covid-19 pandemic as a wake-up call: do we need our offices?**

And then the COVID-19 pandemic pushed this development further than anyone could have foreseen. Global research by JLL (2020) indicates that demand for flexible space has come to a virtual halt with most deals representing a spillover from last year. Coworking space is the most impacted due to its high exposure to freelancers (17%), start-ups (27%) and SMEs (38%). The other user groups are remotely working entrepreneurs (8%), remote corporate workers (5%), digital nomads (3%) and large-scale corporations (2%) (coworkinginsights.com, 2019). In the long term, however, businesses will have a greater need for flexible space to accommodate shifting workforce practices and to provide varied workplaces for employees.

JLL (2020) mentions in its corporate real estate perspective that COVID-19 has served as the ultimate accelerant to corporate transformation, speeding up many trends evident before the pandemic and pushing organisations towards change. These developments lead to a reduced need for office space, as shows clearly in the banking industry. A global survey among 800 senior financial services executives (Deloitte, 2020) revealed that about one-third of the banking, insurance, and investment management respondents say their companies plan to rationalise their CRE footprint over the next six to twelve months. For example, ABNAMRO has decided to sell its landmark head office in the Amsterdam Business District, stating: ‘We will redevelop one of our locations in Amsterdam into a Paris-proof workplace designed to facilitate the trend of remote working. Alongside this, we will sell our head office building and lease back part of it’ (DutchNews.nl, 30 November 2020).

Likewise, ING announced plans to close offices in The Netherlands, South America and Asia.

Worldwide, this virus forced people to work remotely, which in most cases means working from home. Before the COVID-19 pandemic, the proportion of home-based workers across the world was relatively low, a mere 3% of employees were working exclusively or mainly from their home (ILO, 2020a). Since the beginning of 2020, the percentage of workers teleworking has risen tremendously. For example, Bick et al. (2020) document that more than one-third of the US workforce worked entirely from home in May 2020, as did 46% of the UK workforce during lockdown (The Guardian, 20 September 2020). Many studies show that workers value working from home and want to maintain this post-COVID for at least part of the week. According to ILO calculations, around 30% of North American and Western European workers are in occupations that allow home-based work (ILO, 2020b). A survey by Gartner (2020) showed that 82% of 127 company leaders, representing Human Resource, Legal and Compliance, Finance and Real Estate, intend to allow employees remote working parttime even when buildings will reopen for workers. Nearly half (47%) said they even plan to enable employees to work remotely full time going forward. For some organisations, flex time will be the new norm as 43% of survey respondents reported they would grant employees flex days, while 42% will provide flex hours. So, a combination of onsite and offsite working will most probably become the norm.

For many organisations with employees working both onsite and remotely, adapting to a new, more complex hybrid workforce is the challenge, as to how people work together to get their job done. As stated in the introduction, working from home also has downsides. Shareena & Sahid found that willingness to work from home is entirely dependent on the presence of children, of having a quiet and comfortable space to work, as well as good internet connectivity. Employees that lack these conditions may seek alternative workspaces to get out of the house, looking to get some temporary separation from housemates or simply to experience a change of scenery. That implies that working in third places is no longer limited to independent workers, frequent (business) travellers and digital nomads. Even the ‘anchors’ and ‘connectors’ in the typology of knowledge workers presented by Greene and Myerson (2011), workers that used to work primarily in their office, may now feel the need a third workplace. The question is, what type of workplace will they use? Club, Hub, Campus, or Coworking space? Could hotels offer a suitable alternative?

### Digital nomads and their alternative offices

Whereas most remote workers have a stable place to live and work from home (and possibly also other places), digital nomads take this location independence further. ‘They travel and do so frequently; both domestically and internationally. They select their location choice based on leisure and lifestyle expectations, not work. Therefore, they often choose comfortable, warm, scenic places that are also quite affordable and welcoming to Westerners’ (Thompson, 2018, p.3). Mobile lives demand flexibility, adaptability and reflexivity to be ready for the unexpected and embrace novelty (Bauman, 2004, p.4), not only for the individuals but also for those and the real estate that host them. Though free to go wherever they want to go, digital nomads tend to visit exiting locations that host a community of likeminded

people. Because, even in these beautiful places, people need social interaction and a sense of belonging. In places that accommodate digital nomads, the boundaries between the first place (home), the second place (work), and the third-place (public space) blur. The emergence of such a fourth place, that often merges elements of two or more places leads to new spatial categories such as co-living, coworking, and co-mingling spaces. The function of such a fourth place is to foster networking, to promote mingling, and to favour collaboration, face-to-face interactions, and the exchange of tacit knowledge, making it the place for the knowledge economy (Morisson, 2019, p.449).

But networks are only of value when relevant others participate. To attract the right target groups, staging an experience that reflects the brand image is increasingly important. Following Berry et al. (2006), Pijls et al. (2017) define an experience as the interaction between the individual and its environment, containing functional, mechanical and humane clues, and the inner responses to this interaction. Both the physical environment and staff behaviour design deliver 'clues' that together conjure an image of the brand and the hospitality offer. In the hospitality industry, customer satisfaction and loyalty are influenced by the hospitality experienced during a stay. The overall experience of hospitality of a person results from the performance on the experiential dimensions Inviting, Care, and Comfort (Pijls et al., 2017). Inviting relates to openness and experience of freedom during a visit (Pijls et al., 2020). Aspects that contribute to the feeling of welcome of the guest are friendliness, inviting, warm, home-like, openness, sincerity and generosity (Brotherton & Wood, 2008; Hemmington, 2007; Clapp & Ridge, 2016). Care is associated with providing support, taking care of a person, relieving him/her of tasks or worries, and taking an interest. Comfort is associated with feeling at ease, relaxed and comfortable (Pijls et al., 2020). Workplaces were traditionally not focussed on hospitality the way the hospitality industry is. Hangouts for digital nomads and coworking spaces already realised that hospitality and fostering a community are indispensable for becoming the place to be. The next paragraph will zoom in on the hotel industry, an industry traditionally focussed on providing hospitality.

## The hotel industry

The hotel industry is a subdivision of the hospitality industry that specialises in providing customers with lodging services. The first hotel chains were formed during the first half of the 20th century in the United States and now dominate the market (Melissen et al., 2018). In 2018, the global hotel industry was a $525bn industry, consisting of 18 million rooms. 54% of rooms were affiliated with a worldwide or regional chain ('branded'), up from 50% in 2012, and 46% are unaffiliated ('independent'). Table 1 shows the global top 10 largest hotel chains. Each chain encompasses multiple brands to target specific market segments. The top 5 hotel groups accounted for 25% of the market share in 2018 (IHGPLC, 2019).

*Table 1: 10 largest hotel chains worldwide (as of June 2020)*

| Hotel chain | Number of properties | Number of guest rooms |
|---|---|---|
| Wyndham Worldwide | 9,280[15] | 697,607[2] |
| Mariott International | 7,484[1] | 1,400,693[16] |
| Choice Hotels | 7,118[1] | 597,018[2] |
| Hilton Worldwide | 6,160[1] | 974,508[2] |
| InterContinental Hotels Group | 5,895[1] | 881,562[2] |
| AccorHotels | 5,100[17] | 704,000[18] |
| Best Western Hotels | 4,131[1] | 380,165[2] |
| G6 Hospitality | 1,392[1] | 118,356[2] |
| Aimbridge Hospitality | 1,261[1] | 179,821[2] |
| Radisson Hotel Group | 1,183[1] | 226,473[19] |

The hotel industry is a rather traditional industry; since ancient times, the core offering consists of lodging, food & beverages. Hotels operate in a fiercely competitive market, in which the guest experience is key to business success. On the one hand, because potential guests orient themselves by other guest's reviews of their experiences, on the other hand, because services, like goods before them, have increasingly become commoditised and experiences emerged as the next step in the progression of economic value (Pine & Gilmore, 1988).

Hotels can be categorised by size, function (business, leisure), service, and cost. The level of luxury is generally indicated by service-levels (limited-service, mid-range service, and full-service), a star rating system (1-5 stars), or the American diamond classification (1-4 diamonds). Most hotels cater to both business guests and leisure guests as their demand is complementary in time. To attract business guests, many hotels offer services like conference rooms, banqueting and printing services. To improve the financial return on shared amenities most hotels make a conscious effort to welcome non-guests to their properties with upscale drinking and dining outlets, spas and pool facilities, and open-up lobbies and ground floor areas for remote working and meeting. This did not change the offer itself but is merely an attempt to attract a different customer segment to bring in extra revenues.

However, the guest and the use of facilities are subject to change. Travel is faster and more accessible, leading to more frequent but shorter stays (Gaggi and Narduzzi 2006). This mixture of business and leisure is referred to as 'bleisure' by Raymond (2013, cited in Scullica & Elgin, 2020), which characterises the aforementioned digital nomads. For this reason, accommodation facilities must be more flexible in their offer of space-services for new travellers. However, traditional hotel real estate is inflexible, as is the design of guest rooms with beds dominating the space.

[15] https://www.statista.com/statistics/197869/us-hotel-companies-by-number-of-properties-worldwide/
16 https://www.statista.com/statistics/197859/total-number-of-guestrooms-of-us-hotel-companies-worldwide/
17 www.group.accor.com
18 Accor-Wikipedia
19 https://www.radissonhotelgroup.com/development_our-portfolio

## Hotel Business Models

Hotel chains operate hotels in four different ways: franchised, managed, leased (e.g. Zoku), and owned/operated (vertical integrated, like citizenM and The Student Hotel). The choice depends mainly on market maturity, owner preference and, in some cases, brand strategy. Hotel companies are rarely owners of the property. Owners and shareholders demand quick returns on investment, especially in times of increased market uncertainty, which leads to limited planning and pricing horizons and a predominantly short-term profit focus (Melissen et al. 2018). This short-term profit-driven focus has increased pressure on margins worldwide.

Derived from Porter's (1995) generic strategies, hotels can follow three generic strategic pricing strategies:

1. Cost-based pricing – adds a profit margin to the cost base to generate a positive financial return.
2. Competitive pricing - following the competition to protect or grow a company's market share at the risk of vicious negative price development.
3. Customer-driven pricing or value-based pricing – the opposite of cost-based pricing- follows the customer's willingness to pay for a hospitality experience.

Within the hotel industry, the easiest way to measure success is by monitoring its key performance indicators. These include revenue per available room (RevPAR), average daily rate (ADR), and occupancy rates, all of which have seen growth over the past decade (Statista.com). Average Daily Rate (ADR) is a commonly used financial indicator in the hotel industry to measure a hotel's statistical performance compared to competitors and to benchmark the performance of a hotel to itself over time. The number represents the average rental income per paid occupied room per period. ADR, along with the property's occupancy, are the foundations for the property's financial performance. The RevPAR is an indication for the financial health of the business based on the ADR multiplied by the occupancy rate. It can also be determined by dividing the total room revenue by the total available rooms.

The demand for hotel rooms is subject to fluctuation. Therefore, in their operational pricing, hotels use yield management practices to optimise RevPAR and occupancy rates. Yield management (or revenue management) is defined as 'the art and science of optimising the total contribution of an organisation's multiple revenue streams by controlling price and availability of products in line with the organisation's strategic direction' (Josephi, 2015, p185.) These practices show from dynamic pricing, whereby different customers pay a different price for the same room to generate the best possible financial return. Thereby, hotels aim to maximise their income. However, one should note that RevPAR focusses on revenue per room, which may become a less interesting measure when hotels diversify the use of their spaces - in such case revenue per square metres might be more interesting than RevPAR.

How hotels adapt to the COVID-19 pandemic

While the global hotel industry has been thriving over the past years, the coronavirus's impact on the lodging industry has been severe. Monthly hotel revenue per available room worldwide showed a sharp decline across all regions, like average daily rates and occupancy (Statisa.com, 2020a). In May 2020, the revenue per available room (RevPAR) in Europe saw the most dramatic effects of the virus, dropping by 85.33 US dollars to 11.35 US dollars compared to the previous year (Statista.com, 2020b).

The unprecedented low occupancy rates of hotels encouraged hotel operators to be more creative in attracting guests and diversifying revenue streams by, for example, the use of a quiet guestroom as a private office for locals looking for some extra space during the workday. Guestline (2020) developed a guideline for hotels that want to offer their lobby and business centre facilities as coworking space. Based on a survey of 2,000 business professionals, they advise hoteliers to see to the needs of business people by offering high-speed internet and enough charging outlets; a distraction-free space; comfortable seating arrangements; a clean and accessible refreshment area; acoustic privacy; (data-)security. This offer mimics the offer of coworking spaces but lacks the community aspect.

**Coworking spaces**

A coworking space is a combination of the second place (work) and the third place (public space). In contrast with traditional café place (third place), where the primary function is to enjoy each other's company, the coworking place' function is to work and network (Morisson, 2019, p.447). What Morisson calls 'the fourth place', Niewiadomska (2013) labels as a third way of working, between the traditional office and home office. Chegut and Langen (2019) describe coworking spaces as offices where the users share amenities and community. According to Waters-Lynch and Potts (2017), coworking spaces focus on social and collaborative activities. Work in coworking spaces is quintessentially mobile, enabled by the diffusion of digital communication infrastructure. Coworking spaces also favour autonomous work in that it is neither exclusively dependent on employer-owned tools nor entirely beholden to employer-determined schedules (De Preuter et al., 2017).

The difference between shared (serviced) office and coworking space is the difference between monetising merely the use of space versus the access to an appealing community with coworking culture (Zhou, 2019). To develop such a sense of community, of shared values, people need to encounter each other. The propinquity effect states that distance is related to the chance people will develop relationships (Gullahorn, 1952). Shared services and events can enable impromptu encounters among workers, leading to socialisation and cooperation (Hua et al., 2010).

Coworking spaces are regarded as 'serendipity accelerators', designed to host creative people and entrepreneurs who wish to break isolation and find a convivial environment favouring meetings and collaboration (Moriset, 2014). Coworking spaces with a livelier community are generally characterised by the organisation of

many activities and by sharing values and principles related to knowledge sharing and community building (Capdevilla, 2013). However, as private offices generate increased revenues, the share of private space in coworking spaces is increasing. Every tenth coworking space is now made up of 60% or more private offices (Deskmag, 2018). As their walls can hinder a collaborative atmosphere and therefore threaten the conditions that encourage coworking and new encounters, these concepts start to resemble serviced offices.

A literature review by Kojo & Nenonen (2017) suggests that mobile multi-locational workers typically use coworking spaces with a need for on-demand workplaces, like young professionals, freelancers and business people who prefer working in a place where people will communicate, collaborate and share knowledge (Parrino, 2015; Capdevila, 2013; Gandini, 2015). According to De Peuter et al. (2017), the key users of coworking spaces are self-employed media- and cultural workers.

*Table 2 Examples of coworking brands*

| Coworking | Number of locations |
|---|---|
| Regus coworking (part of IWG) | 2,600 locations in 106 countries[20] |
| WeWork | 828 locations in 120 cities in approximately 32 countries[21] |
| Spaces (part of IWG) | 429 city centre locations[22] |
| Uncommon | 5 locations in London[23] |
| B. | 3 locations in Amsterdam[24] |

### Coworking business models

As a business model, coworking spaces are an exponent of the ‘as-a-service’ economy, as they provide workspace as a service on demand. Coworking spaces may be publicly supported, whereas others are entirely privately owned. The dominating model is for-profit (83% of coworking spaces) (Deskmag, 2019). Market research shows that in 2019, most of this industry’s growth came from brand-new businesses (65%) while chains and second or more locations make up the remaining 35% (Zuckerman, 2020). 65% of properties are rented or leased, 19% of properties are owned, 7% are managed under contract, 7% a joint venture with the owner (Deskmag, 2019).

The size of coworking spaces varies from several dozen square metres to entire buildings (Bates 2006, cited in Kojo & Nenonen, 2017). According to Deskmag (2019), 49% of coworking locations is under 500 $m^2$, 14% is 500-100 $m^2$, 20% is 1000<2000 $m^2$ and 17% is over 2000 $m^2$. A typical coworking space has around 80 members, working at 70 desks spread over an area of around 800 $m^2$. An average member churn-rate of between 2-9 % leads to the highest chance on financial profitability (Deskmag, 2018; Deskmag, 2019). Coworking spaces may constitute a network in which each space that belongs to the network adopts more or less the same brand image and operational model (Olma, 2012).

20 https://www.linkedin.com/company/regus/
21 https://en.wikipedia.org/wiki/WeWork
22 https://franchise.iwgplc.com/en-gb/iwg-franchise-business-model
23 https://uncommon.co.uk/
24 https://b-buildingbusiness.com/

The contracting commitment of independent coworking spaces is typically flexible, short and membership-based. When the coworking space allows pay-per-use, the rotation speeds tend to be high, with weak ties in the community.

Coworking in hotels

Not only real estate companies, but also hotels capitalised on the booming coworking industry. Brands such as Sir Hotels and Ruby Hotels created dedicated coworking spaces on their sites. Ennismore's The Hoxton group also launched their own coworking concept, Working From_, at their Southwark site in London as well as in Fulton Market in Chicago (Stay The Night, 2020).

**Hybrid hospitality**

So not only real estate companies but also hotels capitalised on the booming coworking industry.

But there also hotels that offer so-called hybrid hospitality. Before the COVID pandemic, front-runners in the hotel industry (see Table 2) developed concepts that provide a place for remote working and living for an extended period of stay. It is an additional business model that reflects the peak and off-peak rhythm of hotels. The same spaces are used more intensively for different guests. To enable this, hotels must adapt their rooms and policies because many traditional hotels are not suitable for this purpose. Core characteristics of the hybrid hospitality hotel are (Colliers International, 2020):

- Pleasant workspaces such as enclosed focus rooms, meeting and event rooms and coworking spaces
- A general living space suitable for collaboration and togetherness
- Good facilities such as restaurants and bars that are affordable and suitable for (small-scale) events
- Providing day flexibility for workplaces
- A 'hospitality first' experience with a personal and high-quality service
- An inspiring and dynamic environment with international allure
- Without the bed as the room's centre, rooms can be used as a hotel room, serviced apartment, workspace, meeting room and event space (private restaurant, private theatre).

When this last characteristic is not present, the hotel applies mixed-use as it is a diversified offer of rooms that enables multiple uses on property-level, whereas hybrid concepts use multifunctional spaces.

In hybrid concepts, the sense of community is an essential aspect of the value proposition. Interaction between users is supported by shared space where people can connect, collaborate and feel at home (Stay The Night, 2020), just like coworking spaces do, but with the difference that digital nomads do not have another place to go home to at night. Therefore, according to the experts interviewed, the community's ties are strong. Besides coworking facilities, hybrids offer a form of what Morisson (2019) calls co-living: the combination of the first place

(home) and the second place (work). The function of co-living is to create an atmosphere conducive to living and working under the same roof.

The added value of hybrid hospitality for companies and employees is the maximum flexibility in workplaces and meeting rooms, without the need to engage in long-term commitments with guarantees. A high initial investment in terms of design can thus be avoided. It also reduces accommodation costs when used for a maximum of two to three working days in addition to working from home. Finally, hybrid hospitality also has added value to society. With a mixed-function, the hotel will have a better connection to the city and the neighbourhood, instead of only serving tourists and business travellers from outside the town (Colliers International, 2020).

Table 2: Examples of innovative hybrid brands

| Hybrid brand | Activities | Number of properties |
|---|---|---|
| CitizenM | Work-sleep-meet-entertain | 21 (+16 in development)[25] |
| TheStudentHotel | Stay – Work – Meet - Entertain | 13 locations in 5 countries[26] |
| Selina | Hotel-hostel-coworking | 81 in 13 countries (expanding to 400 locations in 2024)[27] |
| Zoku | Home-office hybrid with hotel services | 1 (+3 opening 2021)[28] |

### Hybrid business models

Hybrids operate in similar ways to hotels, being franchised, managed, owned or leased (see above). Industry leaders indicate the owned and leased properties may be more common than in the traditional hotel industry, but this may be an effect of the dominance of American hotel chains and their preference for franchised and managed business models. Hybrid business models focus on maximising revenues by minimising unused capacity. This strategy is referred to as 'intensifying' (increased use of, or greater productivity within properties), as opposed to 'densifying' strategies that focus on reducing the amount of space per user (which is the rationale behind many open-plan offices). As hybrids operate 24/7, they have roughly twice as much time to cover their fixed costs than coworking spaces. However, it does require the last characteristic of hybrid hotels mentioned above: a room that is not solely focussed on sleeping, like in the traditional hotel. A hybrid business needs a design that enables multifunctional uses of the rooms.

The other cornerstone in the hybrid business model is resilience. Hybrid business models and properties are designed for maximum flexibility and multifunctionality. The combined revenue streams (short stay, extended stay, remote working, events, and even residential) increase resilience and reduce unused capacity. The most profitable combination of target groups is travel and work, as this combination allows

25 https://www3.citizenm.com
26 https://www.thestudenthotel.com/coworking-space/
27 https://www.selina.com/all-locations/
28 www.liveZoku.com

for (almost) 24/7 use of the same space. For example, a room used for an overnight stay between 19.00h and 08.00h, can -after cleaning- be available for daytime workers from 9.00h. The sleeping area is closed off, and overnight guests can store their personal belongings securely. At the end of the day, the room is again cleaned and available for overnight stay once more. Zoku is so far the only hotel where this is possible. To compensate overnight guests for the inconvenience of clearing the room, guests sometimes receive a share of the revenues. By combining restaurant functions, events and coworking, open space occupancy could be stretched for up to 16 hours a day.

## Methods

As a first step, four expert interviews were held to gain first-hand insights into the respective markets, the business models, challenges and prospects. Two experts were GM's in the international hotel industry in the past; one expert is co-founding father of multiple hybrid concepts (Zoku), one is a research professor. Next, desk research was conducted to compare the offer of hotels, coworking spaces and hybrids. Five international city hotels from the top 10 hotel chains (Table 1), five coworking brands depicted in Table 2 (of which three are global market leaders), and four hybrid models (Table 3), were included in the analysis. The hotels included were selected based on the availability of a workspace offer for remote working, 4-5 stars, metropolitan locations, international spread (Amsterdam, Singapore, Washington, Paris, Brussels). The analysis included: target groups (freelancers, (business)travellers, remote workers, start-ups, SME, corporates), type of space (office, hotel room, loft, common space), functions (hot desk, designated desk, private serviced office, customised private office, overnight stay, residential), operating hours, contract, price category, the presence of community and type of amenities.

## Results

### Hotels

Hotels that offer WorkFromHotels focus on B2B target groups (businesses that want employees to work in a representative environment away from the office), and B2C (people who need an alternative for work from home). Resort hotels also offer 'workations', but this falls out of the scope of this chapter. Many hotels offer day rates for the use of common spaces for coworking and meeting, and guest rooms for remote work in a private setting, much like activity-based work concepts, as predicted by Lub et al. (2016) in their study on the future of hotels. Rates for coworking are comparable to those in the coworking market: on average €15 per day. Rates for day use of guest rooms varies from €50 per day for standard rooms to €200 per day for suites. When the use of hotel amenities like spa's, pools and fitness rooms is allowed, this is reflected in the price. Most hotels allow 10 to 12 hours between check-in and check-out for daytime use. Hotels do have loyalty programmes, but no sense of community. Users are regarded as individuals; any form of social interaction is up to the individuals themselves.

Suites are better suited for work (but rather expensive) than standard hotel rooms, which commonly have large beds dominating the space and, in most cases, small, unergonomic desks. Therefore, *without* an upgrade of the guest rooms, the former GM-respondents expect this offer to be a temporary phenomenon to make money in slow times. However, some of the high-end top-10 hotel chains take targeting the B2B sector serious, by transforming meeting rooms into shared offices for several dozens of people, e.g. enabling teams to work together. Moreover, some hotels convert guest rooms into private offices for 1-3 people. Accor, for example, has converted hotel rooms in 320 hotels to daytime' hotel office': hybrid rooms with an upgrade of the office facilities with spacious desks, wireless keyboards and mouse, ergonomically furniture and stationery. In these rooms, the sleeping arrangements have been made less prominent. The research professor explains: "Now that hotels are generally owned by investors, the turnover per square meter has become much more important than the room occupancy rates. And hotels typically have a lot of unused capacity due to large common areas and the rather long time between check-out and check-in. Remote working and coworking are ways to optimise the turnover per m2 as it provides a stable customer and revenue flow that is independent of travel." The fact that platforms like MEOW (My Extraordinary Workspace) jump in this development seems to support his vision. Like desk booking platforms, they could become a vital channel to connect to the market, and like these, take a relatively large share of the rates in return. For example, MEOW takes 20% of the coworking fee, and 10% of any additional booking of hotel rooms and meeting rooms (NRIT Media, 2020).

Coworking spaces

Coworking spaces, in general, have a broad target group: freelancers, remote workers and SMEs. Or, as WeWork states on its website: "businesses of all sizes - from freelancers to Fortune 500's".

Their memberships and contracts cater to the need for flexibility of these target groups: day passes, hot desks memberships, dedicated desks in shared offices memberships, and private office space. Rates vary and depend among others on location, the standard, and amenities. Coworking spaces depend on communities for customer loyalty, and the community is of added value to users for social and business reasons. The strength of community ties depends on the member churn rate and the type of users.

Memberships allow the use of space for several days per month up and until full access. In general: private office space has contract terms from 3 months to 1 year, with 30 days or more notice, whereas coworking spaces commonly apply one moth for dedicated desks.

In general, dedicated desks and office members have 24/7 access to their space, whereas access to shared desks in coworking spaces is limited to operating hours and staff presence. All coworking spaces have community managers and organise events to stimulate a sense of community. Some add development programmes to the menu. Speedy and secure WIFI, phone booths for private calls, common space for interaction combined with F&B/kitchenettes and network events is always

provided. Some have extras included in the fee, like fitness centres, yoga classes, showers, shared bikes, bring your dog, reception services, and limited use of meeting rooms. Also, coworking spaces with attractive bar/restaurant facilities often open these up to the public to generate traffic.

But, the 'co' in coworking refers to working together, not to the combination of different kinds of use. Coworking spaces have one focus, supplying a workplace, whereas hybrids supply for different kinds of functions.

### Hybrids

Hybrids combine more than two functions and tap into different target groups by definition; however, they differ in the combinations they make. The desk research showed that some organisations profile themselves as hybrids. In contrast, on second look, they are 'just' coworking spaces or regular hotels that brand themselves as vibrant communities, to become more attractive to Millennials.

According to the co-founder of Zoku, ‘community ties are stronger in hybrids than in coworking spaces, as people do not have a home to go to at night. (Digital) nomads need the community to feel at home, and thus they actively seek ways to connect to others. The common spaces, including active management to facilitate effortless connections in hybrids, are essential for making a home.'

Community-building is supported in three ways: by the membership (no free use of space or facilities), by active community management, and by scheduled events. Co-living-travel hybrids actively connect to local communities. This adds to their members' travel experience. Hybrids that are more focused on work actively help members establish local networks for business or for an extended stay.

Hybrid business models have flexibility and community-building at heart. Spaces are designed in such a way that multifunctional use is always possible. This means that they can breathe with market demand and that spaces are suitable for multiple functions without adaptions. This makes hybrid concepts the most robust business model of the three included in this analysis.

### Combined findings from a guest perspective

The main activities in peoples' lives can be summarised as sleeping, working, socialising, nourishment (Food & Beverages), sports & leisure. If we depict the different functions that accommodate people’s multifaceted lives as modules, we can map and compare the offer of regular offices, residential facilities, hotels, coworking spaces, and hybrid hospitality. The relevant modules for different types of workers are printed in black; the non-relevant modules in grey.

*Type of guest*: the average knowledge worker, the ‘anchor’ in Greene & Myerson’s typology, uses the regular office and his/her residential housing to facilitate a clearly separated work and private life (Greene & Meyerson, 2011). Whenever (s)he is working, (s)he can be found in his/her room at the office.

***Regular office*** *– work as a primary function – long-term contracts*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & leisure |

***Residential properties*** *– long stay*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | buiness meetings | community and events | sports & leisure |

During (short) holidays, the (s)he may go to a hotel, as a leisure guest.

***Hotel*** *– primary function short-stay lodgings, meetings & events*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & leisure |

*Type of guest*: the independent professional. Independent professionals or freelancers need short-term/flexible office space s as their contracted work is dynamic. Furthermore, they require a social function to mingle and share experiences with peers. They spend the night at their private homes. Coworking spaces fit this need.

***Coworking space*** *– flexible memberships and community*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & leisure |

*Type of guest*: digital nomads. For digital nomads frequently change their location, mostly travel solo and have a lower income from gig-work. They look for interesting places to stay: a temporary home-base with likeminded others, affordable and attractive comfort on an exciting location, and flexibility. Fun first, work to live not live to work.

***Hybrid hangout*** *– initiatives like Selina*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & leisure |

*Type of guest*: the frequent business traveller. This person frequently travels for meetings and projects, matching the navigator type according to Greene & Meyerson (2011). The business traveller wants decent facilities for concentration work in between meetings. The business traveller is 'a rolling stone' but enjoys the company of like-minded people. Or people in general. Options for stay:

- a hotel with common coworking space, social interaction but unfortunately also distraction
- a hotel that offers hybrid rooms for working and sleeping. More studio than a bedroom, with comfortable seating arrangements, a form of social contact, and ideal if one visits the same place frequently, or for an extended stay too short for residential hires.
- options to have meetings in the hotel

- go to the gym and relax

***Hotel office hybrid***

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & leisure |

***Genuine hybrid hospitality*** *- combining stay, work and community like Zoku*

| | | | | | |
|---|---|---|---|---|---|
| sleep | work | F&B | business meetings | community and events | sports & yoga |

This description is based on the guest perspective. From the owner's perspective, it makes a big difference whether different functions are in different rooms, or whether the spaces are versatile enough to enable multiple functions. Not necessarily by offering all necessary amenities in one space, but by easily selecting what amenities should be present when as a guest, you get what you pay for. Reminiscent of a small apartment where the bedroom turns into workspace because the convertible bed disappears into the wall. A guest that does not pay for sleeping cannot 'unlock' the bed. The same room may function as a workplace and as a bedroom. That's a true hybrid concept.

## Conclusion and discussion

The pandemic has proven to be a powerful driver for societal change. It has accelerated trends, changed people's behavioural patterns and has forced society at large to adapt to digital and remote working. This makes corporates shift priorities and rethink their real estate strategies. It is generally understood that part-time remote working is here to stay and that home working alternatives have market potential. From a corporate perspective, hotels and hybrid brands can provide flexible rent rates that are particularly attractive during uncertain economic times and no large up-front investments or lengthy contract obligations, just like operators of flexible office space can, but with elevated hospitality. Therefore, hotels and hybrids present an attractive alternative for companies transitioning to a model in which their employees mainly work remotely.

Furthermore, although the travel industry expects to bounce back in time, our respondents expect that travel behaviour will change. Short international trips for business meetings are not expected to return. Also, the number of expatriates is expected to reduce and replaced by extended business trips of several weeks (slow travel), bringing opportunities for extended stay and co-living functions.

The coronavirus has taught us that resilience is key for businesses to survive. To build resilience, forward-thinking companies across the industry have found effective ways to innovate, take risks and merge concepts. They have redesigned their spaces, added functions and made their business models more robust, whilst at the same time increasing the turnover per square meter. Spaces may be used for different functions, or spaces are dedicated to new or even innovative functions. In case of hybrid hospitality, spaces can change use from one kind into another, even on one day, allowing an intensified use. The four experts agree that hybrid models

are flexible enough to evolve alongside shifting consumer needs while accommodating their multifaceted lives, confirmed by our desk research results. A hybrid model provides investors with a more guaranteed base income by an intensified use of square meters, and the ability to generate a higher return in peak periods. The base income should cover a good percentage of fixed costs while the flexible costs can vary as demand does. All in all, we conclude that hybrids and hotels that offer dedicated workspace will be a permanent addition to the flexible office market. As the market demand for flexible solutions is expected to rise too, only time can tell if their presence will be disruptive or cater to a particular customer segment outside the scope of the regular coworking spaces.

## Discussion

This study took place during the second wave of the coronavirus and the subsequent repeated lockdown measures. Predicting the future is always hard, but in times like this, the dynamics are unprecedented. Furthermore, it is a small and non-representative sample of the industry. However, we tried to compare apples to apples as much as possible by including a similar range of stars in the hotels and selecting hotels that belong to the market leaders, so that concepts developed are not limited to one hotel but implemented at least regionally, preferably globally.

Finding enough truly hybrid concepts with an international presence that include serious work facilities proved a challenge. We ended up with four instead of five, with the Selina concept bordering what we found acceptable (as they provide only coworking spaces to their overnight guests and not much information was publicly available). Furthermore, one might discuss whether these concepts have mixed use of rooms or hybrid rooms. For comparing coworking spaces, we selected brands with more than one location in metropoles that had considerable size. Three of the top 5 market leaders were included, with the addition of Uncommon and B. as the major brands that border serviced office space. Community and collaboration seem to be there for marketing purposes mostly. The draft version of this chapter was reviewed by two of the interviewed experts. We gladly used their input to improve the literature review, findings and

## References


Bauman, Z. (2004). *Waste Lives: Modernity and Its Outcasts*. Cambridge, UK: Polity Press

Berry, L.L., Wall, EA, & Carbone, L.P. (2006). Service clues and customer assessment of the service experience: lessons from marketing. *Academy of Management Perspectives*, *20*(2), 43-57. https://doi.org/10.5465/AMP.2006.20591004

Bick, A., Blandin, A., & Mertens, K. (2020). *Work from home after the COVID-19 Outbreak.* London, Centre for Economic Policy Research. https://cepr.org/active/publications/discussion_papers/dp.php?dpno=15000

Brotherton, B., & Wood, R. C. (Eds.) (2008). *The SAGE Handbook of Hospitality Management*. London, U.K.: Sage Publications Ltd.

Capdevila, I. (2013). Knowledge dynamics in Localised Communities: Coworking Spaces as microclusters. http://dx.doi.org/10.2139/ssrn.2414121.

Chegut, A., & Langen, M. (2019). *The Financial Impacts of Coworking: Rental Prices and Market Dynamics in the Commercial Office Market*.

Clapp, J., & Ridge, E. (2016). *Security and Hospitality in Literature and Culture: Modern and Contemporary Perspectives*. New York, U.S.A.: Routledge.

Colliers International (2020). *Hotels om in the werken - hybrid hospitality is de toekomst* [whitepaper]. [Colliers International (2020). *Hotels to work from – hybrid hospitality is the future* [whitepaper]].

Deloitte (2020). *Deloitte Insights: 2021 Commercial Real Estate Outlook – rebuilding to enhance resilience*.

De Peuter, G., Cohen, N.S., & Saraco, F. (2017). The ambivalence of coworking: on the politics on an emerging work practice. *European Journal of Cultural Studies*, *20*(6), 687-706. http//doi.org/10.1177/1367549417732997

Deskmag (2019). *The 2019 Global Coworking Survey*.

Deskmag (2018). *The 2018 State of Coworking Spaces*. https://www.deskmag.com/en/coworking-spaces/the-state-of-coworking-spaces-in-2018-market-research-development-survey

FMN & CoreNet Global (2013). *Wat wil de eindgebruiker? Op naar een vraaggestuurde kantorenmarkt. Samenvatting resultaten fase 1.* [FMN & CoreNet Global (2013). *What does the end user want? Towards a demand-driven office market. Summary of results phase 1*]

Gaggi, M., & Nardzzi, E. (2006). *La fine del ceto medio e la nascita della società low cost*. Einaudi, Turin [Gaggi, M. & Narduzzi, E. (2006). *The end of the middle class and the birth of the low-cost society.* Einaudi, Turin].

Greene, C., & Myerson, J. (2011). Space for thought: Designing for knowledge workers. *Facilities*, *29* (1/2), 19–30. http://doi.org/10.1108/02632771111101304

Gandini, A. (2015). The rise of coworking spaces: A literature review. *Ephemera*, *15*(1), 193–205.

Guestline (2020). *A hotelier's guide: Designing the ideal coworking space*. https://www.guestline.com/nl/a-hoteliers-guide-on-coworking/

Gullahorn, J. (1952). Distance and friendship as factors in the gross interaction matrix. *Sociometry*, *15* (1-2), 123-134. https://doi.org/10.2307/2785450

Hemmington, N. (2007). From Service to Experience: Understanding and defining the hospitality business. *The Service Industries Journal*, *27*(6), 747-755. http://doi.org/10.1080/02642060701453221

Hua, Y., Loftness, V., Kraut, R., & Powell, K.M. (2010). Workplace collaborative space layout typology and occupant perception of collaboration environment. *Environment and Planning B: Planning and Design*, *37*, 429- 448. http://doi.org/10.1068/b35011

Josephi, A. (2015). *The phenomenology of Revenue Management: Explorations in the Hotel Industry.* Maastricht, The Netherlands: Maastricht School of Management.

IHGPLC (2019). *Strategic Report – Industry overview*.

ILO (2020a). *The home as workplace: Trends and policies for ensuring decent work.*

ILO (2020b). *Working from Home: Estimating the worldwide potential*, ILO policy brief.

Jakonen, M., Kivinen, N., Salovaara, P., & Hirkman, P. (2017). Towards an economy of encounters? A critical study of affectual assemblages in coworking. *Scandinavian Journal of Management, 33*(4), 235–242. http://dx.doi.org/10.1016/j.scaman.2017.10.003

JLL (2020) *Global Real Estate Perspective – Highlights Investor and Corporate, Global Research, November 2020*.

Kojo, I., & Nenonen, S. (2017). Evolution of coworking places: drivers and possibilities. *Intelligent Building International*, *9*(3), 164-175. https://doi.org/10.1080/17508975.2014.987640

Lub, X.D., Rijnders, R., Niño Caceras, L., & Bosman, J. (2016). The future of hotels: The Lifestyle Hub. A design-thinking approach for developing future hospitality concepts. *Journal of Vacation Marketing*, *22*(3), 249-264. http://doi.org/ 10.1177/1356766715623829.

Melissen, F., Van der Rest, J.-P., Josephi, S., & Blomme, R. (eds.) (2018). *Hospitality Experience*. Groningen/Utrecht, The Netherlands: Noordhoff Uitgevers.

Moriset, B. (2014). Building new places of the creative economy. The rise of coworking spaces, Paper presented at the 2nd Geography of Innovation International Conference, Utrecht University, The Netherlands. Available at https://halshs.archives-ouvertes.fr/halshs-00914075.

Ng, CF (2016). Public spaces as workplace for mobile knowledge workers, *Journal of Corporate Real Estate, 18*(3), 209-223. http://doi.org/10.1108/JCRE-10-2015-0030

Niewiadomska, E.W. (2013). *Marketing Strategies to Grow Your Coworking Business!* http://www.deskmag.com/en/8-marketing-strategies-to-grow-your-coworking-business-791

NRIT Media (2020). *Mix hotel en werkplek – hotels anders inzetten en ontwikkelen in 6 trends*. https://www-nritmedia-nl.saxion.idm.oclc.org/kennisbank/43438/mix-hotel-en-werkplek/?topicsid= [NRIT Media (2020) Mix hotel and workspace – a different use and development of hotels in 6 trends]

Olma, S. (2012). *The Serendipity machine – A disruptive business model for society 3.0.* Amersfoort, The Netherlands: VLDB.

Pijls, R., Groen, B.H., Galetzka, M., & Pruyn, A.T.H. (2017). Measuring the experience of hospitality: scale development and validation. *International Journal of Hospitality Management, 67*, 125-133. http://doi.org/10.1016/j.ijhm.2017.07.008

Pine, B.J., & Gilmore, J.H. (1988). Welcome to the Experience Economy, Harvard Business

Review, July-August. https://hbr.org/1998/07/welcome-to-the-experience-economy

Parrino, L. (2015). Coworking: assessing the role of proximity in knowledge exchange. *Knowledge Management Research Practices, 13,* 261-271. https://doi.org/10.1057/kmrp.2013.47

Porter, M. (1995). Competitive Advantage: Creating and sustaining superior performance. New York, USA: The Free Press.

Rossitto, C., & Lampinen, A. (2018). Co-Creating the Workplace: Participatory Efforts to Enable Individual Work at the Hoffice. *Computer Supported Cooperative Work (CSCW), 27*, 947–982. http://doi.org/ 10.1007/s10606-018-9319-z

Scullica, F., & Elgani, E. (2020). Time. Hybrid Spaces for Users-Bodies between Work and Hospitality. In: Anzani A. (eds) *Mind and Places*. Springer Series in Design and Innovation, 4. Springer, Cham. https://doi.org/10.1007/978-3-030-45566-8_19

Shareena, P., & Shahid, M. (2020). Work from home during COVID-19: employees' perceptions and experiences. *Global Journal for Research Analysis, 9*(5). http:doi.org/10.36106/gjra. https://www.worldwidejournals.com/global-journal-for-research-analysis-GJRA/article/work-from-home-during-covid-19-employees-perception-and-experiences/MTQ2ODE=/?is=1&b1=5&k=2.

Statista.com (2020a). *Hotel industry worldwide - statistics & facts December 2020.* https://www.statista.com/topics/1102/hotels/

Statista.com (2020b). *Monthly hotel revenue per available room worldwide from 2018 to 2020, by region*. https://www.statista.com/statistics/206844/hotel-revpar-by-region-worldwide/

Stay The Night Ltd. (2020). *The Future of Hospitality – Why 2021 is the Year of the Hybrid* [whitepaper].

Termaat, W.A., Van Sprang, H., & Groen, B.H. (2014). Workspace 2020 - Club, Hub and Cowork space: business models for optimal FM support for office workers in the future, in *Proceedings of the 13th EuroFM Research Symposium*. http://doi.org/10.13140/2.1.2537.2963

The Guardian (20 September 2020) *Another day not at the office: will working from home be 2020's most radical change?*

Thompson, B.Y. (2018). Digital nomads: employment in the online gig economy.

Glocalism: *Journal of Culture, Politics and Innovation*, 1, doi: 10.12893/gjcpi.2018.1.11.

Waters-Lynch, J., and Potts, J., and Butcher, T., Dodson, J., & and Hurley, J. (2016). *Coworking: A Transdisciplinary Overview.* SSRN: https://ssrn.com/abstract=2712217

Zhou, Y. (2019). *A Taxonomy of Coworking Space: Manhattan, NYC.* https://ecommons.cornell.edu/bitstream/handle/1813/70837/14_A_Taxonomy_of_Coworking_Space_Manhattan_NYC.pdf?sequence=1&isAllowed=y.

Zuckerman, A. (2020). Coworking statistics 2019/220: Market share & Industry Growth. Available via: https://comparecamp.com/coworking-statistics/

# What estate factors could significantly affect the satisfaction of residents during pandemic Covid-19?

**Bojan Grum**

New University
European Faculty of Law, Slovenia
bgrum@gmail.com

**Darja Kobal Grum**

Department of Psychology, Faculty of Arts
University of Ljubljana, Slovenia
darja.kobal@ff.uni-lj.si

## Abstract

In this article, we explore what are the key real estate factors that significantly affect to the satisfaction of residential during pandemic Covid-19. The main instrument used to measure the satisfaction level of the participants is a questionnaire that we designed ourselves for previous studies in 2010. Participants expressed as the most important "COVID " factors the possibilities of establishing a home office, good technological equipment of the apartment, the possibility of establishing a mudroom, a detached unit space and the possibility of contact with nature, which is also associated with natural lighting and airiness. Results show that the expressed statistically significant differences between year 2010 and 2021 in terms of real estate living conditions are shown in satisfaction with current living conditions, brightness oz. natural light, proximity of kindergartens, schools, work opinions and health centers, maintenance costs and sense of belonging to the neighborhood. Understanding this gives our study special meaning. We believe that the results of the study are important for the further development of the profession that plans the development of housing policy.

Keywords: COVID-19, satisfaction, real estate factors, residential property

## Introduction

The concept of home is multi-dimensional and complex. The home as refuge or haven means that there is separation between the public sphere and the private one. Work is external and home life is internal (AlKhateeb and Palmer Peterson, 2021).This delineation of spheres influenced housing and home layouts for almost two centuries, especially for the upper and middle classes. However, in late twentieth century during the digital revolution, these boundaries have become blurred as home offices and digital technology allow increased work from home

(Cieraad, 2020). The meanings of privacy and life/work separation could also be altered due to these events (COVID-19) and cause one's original connotation of home to fall apart (Cieraad, 2020). During the lockdown period, houses became spaces for both living and working, as well as for leisure activities. Most people were "stuck" in their own homes because of the "stay-at-home" measures implemented by governments (Sharifi and Khavarian-Garmis, 2020). The pandemic crisis has led to the new organization of activities in terms of urban spaces and mobility, as well as different uses of the spaces inside houses (De Toro and Nocca, 2021). These new ways of living will, in part probably end with the end of the health emergency; but in some ways, they are likely to become part of our way of life and therefore will not end when the pandemic will be over (De Toro and Nocca, 2021). The pandemic has changed the way of life of many people, towards the research of new places to live or for new types of sociality. The new housing requirements that are emerging in this period are also likely to affect the future market in the post-COVID-19 period, as many lifestyles are destined to change and work, study and leisure requirements will no longer be the same as before the pandemic (De Toro and Nocca, 2021). De Toto and Nocca referred (2021) that in Italy studio apartments were previously the most popular dwellings in large cities and are more difficult to sell, today because post Covid requirements are different: larger and greener spaces are required, considering the need to spend increasing amounts of time at home. Dwellings with better natural lighting, better acoustic and thermal insulation, a location on higher floors of the building and more advanced technological equipment are preferred. Tanrıvermiş (2020) found that impacts of the COVID-19 increase demand for land for production and settlement in rural areas and in addition to the large land area demand, there is an increase in the demand for land to establish settlements, farmhouses, and hobby gardens. The design of residential architecture will need to adapt to the new reality that COVID-19 will not be the last coronavirus epidemic (Spennemann, 2021). It argues for a containment space, separating the largely uncontrollable external environment from the internal threat-reduced residential space, for a separation of visitor entertainment areas and private sleeping areas, as well as the design of a spatially separated master bedroom that can double as a self-isolation space if the need arises (Spennemann, 2021). A future proofing of new residential builds in the post-COVID environment must embrace the principles of universal design and incorporate the lessons from COVID-19. The residence needs to be fully functional under 'normal' usage, with an added ability to function in a pandemic environment to buffer the occupants from the uncontrollable external world. If an occupant is infected or required to self-isolate, to allow for internal containment while at the same time permitting the remainder of the occupants to function as normally as possible (Spennemann, 2021).

### Home changes during COVID-19

Spending so much time at home leaves people to look at their homes and want to make changes. Morgan (2020) reported that 70% of Americans have completed a home improvement project during the pandemic, with more projects planned for 2021. Most common COVID design change is rooms serving more than one purpose (Morgan, 2020). The space, which until recently served as a dining room, is now also the epicenter of virtual learning. The basement floors, which served as warehouses, became gyms. Workbenches are set up in the bedrooms and a

workspace included in the bedroom is created. For many years, open concept plans were popular, but due to the pandemic, homeowners have moved to more traditional layouts with spaces that can be closed to create individual areas. Instead of virtual school, playtime, and telecommuting taking place in the same common space, people now want to close the door to give everyone their own space (Morgam, 2020). People are looking for a personal outdoor space where there is no crowd. From sprawling backyards to small city backyards, outdoor spaces of all sizes allow homeowners to cook, eat, play, and exercise in the fresh air (Morgan, 2020). Balconies, loggias, terraces on the roofs of buildings are preferred, which allow at least a little privacy and contact with the green surroundings, fresh air, the feeling of open space.

A recent survey of architects reveals that clients are looking for ways to improve the time they spend at home (Kolomatsky, 2020). Findings are summarized in the Table 1.

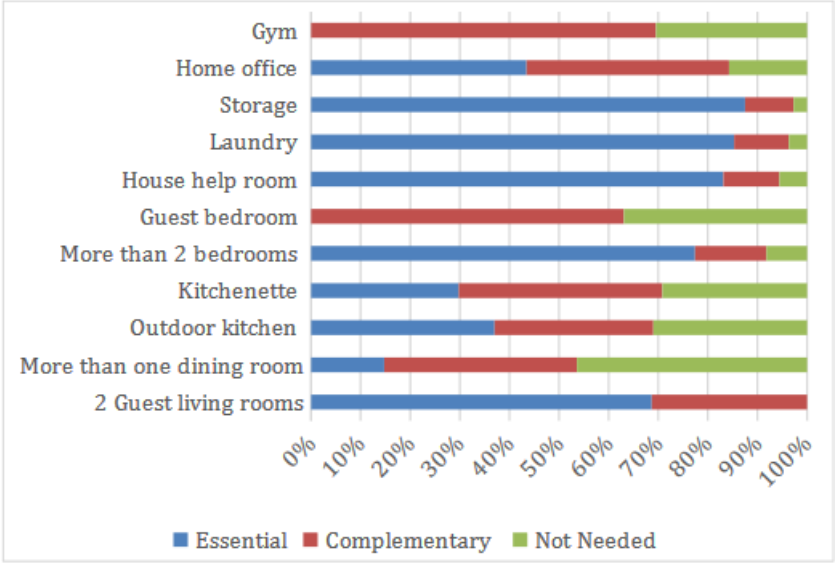
*Table 1: Special Function Room Requests*

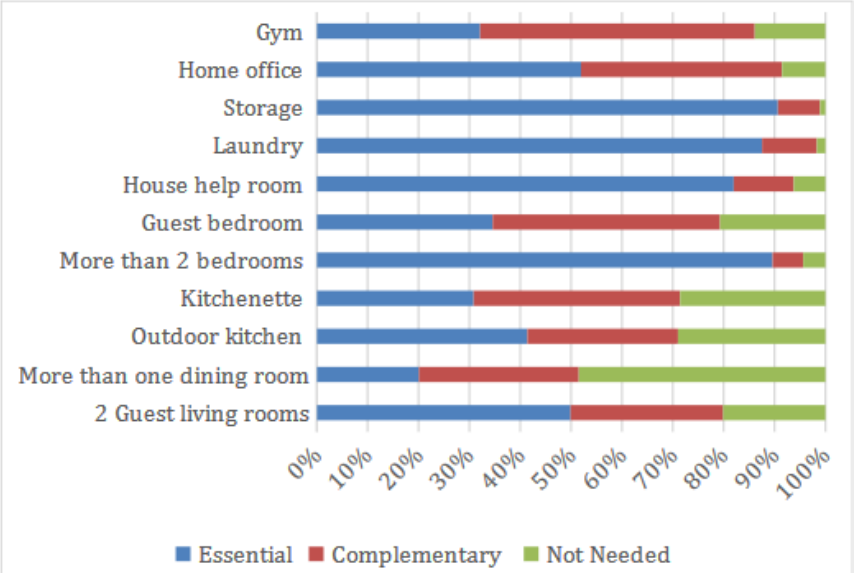
| Room type | 2019 | | 2020 | |
|---|---|---|---|---|
| | Down % | Up % | Down % | Up % |
| Home office | 4 | 33 | 0 | 68 |
| Outdoor space | 1 | 61 | 1 | 62 |
| Additional multifunction room/ flexible space | - | - | 2 | 45 |
| Mud room | 2 | 32 | 0 | 38 |
| Au pair / in-law suits | 9 | 46 | 7 | 42 |
| Exercise room / yoga space | - | - | 4 | 28 |
| Sun room/three season porches | 19 | 25 | 11 | 31 |

Source: 2019, 2020 AIA Home Design Trends Survey By The New York Times: http://info.aia.org/AIArchitect/2020/0911/aia-interactive/index.html#!

The results showed that 68 percent of respondents cited increasing client requests for home offices, and none reported a decrease. Specifically, there were more requests for sunrooms or three-season porches (rooms that bring nature indoors) and mud rooms or “drop zones” (areas to isolate contaminated items from the house at large). Other special-function rooms (outdoor living spaces among them) maintained their popularity or edged up. People need places where they can be together with family, but also places where they can be alone to reflect, to learn, to recharge. AlKhateeb in Palmer Peterson (2021) referred, that many authors frequently suggested changes caused by Covid 19 like multi-functional spaces and greater use of smart technologies (Bahadursingh, 2020; Chayka, 2020; Larson, 2020; McKeough, 2020; Rizatto, 2020; Wigglesworth, 2020). Their research pointed out the downside of open plan house layout where during the quarantine period, people seek their own solitude and privacy, especially acoustic separation and the need to return to multi-generational housing design due to care and safety requirements of older family members (AlKhateeb and Palmer Peterson, 2021). AlKhateeb and Palmer Peterson (2021) surveys requested participants to rate the importance of space types in their homes. The results are showed in Figure 1.

*Figure 1: Space Preferences in 2018-2019 (pre-COVID) and in 2021 (AlKhateeb and Palmer Peterson, 2021)*




AlKhateeb and Palmer Peterson (2021) reported that according to the respondents in 2018/19, the spaces in their home that were 80% or more essential to them were a house help room, laundry room, and storage. Features that were between 50% to 80% essential were two (gender separate) guest living rooms and more than two bedrooms. Elements that were rated less than 50% essential were more than one dining room, outdoor kitchen, kitchenette, guest bedroom, home office and gym. The spaces with the least importance were more than one dining room (15%), and home gym (20%). According to respondents in the March/April 2020 survey, the spaces in their home that were nearly 80% or more essential to them were more than two bedrooms, house help room, laundry room, and storage. Features that were between 50% to 80% essential were home office and two (gender separate) guest living rooms. Elements that were rated lessthan 50% essential were more than one dining room, outdoor kitchen, kitchenette, guest bedroom, and gym. The

space with the least importance was more than one dining room (20.8% essential) (AlKhateeb and Palmer Peterson, 2021). Their responses are not wholly surprising and tend to echo what design experts had predicted (Bahadursingh, 2020; Chayka, 2020; Ebert, 2020; Kloncz, 2020; Larson, 2020; LeRoux, 2020; Makhno, 2020; Rassia, 2020; Rizatto, 2020; Samah and Simbabawa, 2020; Wigglesworth, 2020; Yuko, 2020, Temeljotov Salaj and Lindkvist, 2020).

As the expressed preferences of residential property users show, during the pandemic Covid-19 the key factors are the possibility of arranging a home office, good technological equipment of the property (internet), the possibility of arranging mud room, stand-alone unit space and the possibility of contact with nature (balcony, terrace, atrium, garden), which is also associated with natural lighting and airiness. Petra (2020) refers, that an increased interest in gardening and urban farming – hobbies is notice.

In our research, we investigate the satisfaction of participants with respect to their location, age, residence, and property ownership according to identified COVID factors. We are interested in whether there are statistically significant differences in terms of expressed satisfaction in year 2000 (before the pandemic) and year 2020/2021 (the time of the pandemic).

## Methodology

The main instrument for measuring the participants' level of satisfaction is a questionnaire that we formed ourselves for previous studies, recently reported by (Grum, 2014; Grum and Kobal Grum, 2020). Real estate factors are related to the physical characteristics of the property (location, size of the apartment, the presence of a balcony, natural light, tranquility, age of the building and neighborhood, parking, infrastructural equipment of the apartment), environmental factors (proximity to vital buildings, accessibility, transport links) and socioeconomic factors (maintenance costs, neighborly relations, sense of security, sense of social belonging, sense of appropriate economic status) (Grum, 2014). The first set of the questionnaire measures demographic factors and covers 34 variables. We extracted eight factors that explain over 60% of the variation (Bastič, 2006). The Kaiser-Meyer-Olkin sampling adequacy measure is 0.7. The Barlett test (BT = 2178.1), which is statistically significant, shows that the extracted factors can be interpreted. The results of the second set of the questionnaire, linked to external expectations, show that four factors explain over 66% of the variance. The Kaiser-Meyer-Olkin sampling adequacy measure is 0.9. The Barlett test (BT = 2791.8), which is statistically significant, shows that the extracted factors can be interpreted. The reliability of the questionnaire, determined by the method of internal consistency or the Cronbach's-alpha coefficient, shows that the questionnaire shows a high level of reliability. The Cronbach-alpha coefficient for the first set of the questionnaire is 0.8 and for the second set 0.9. The number of 1.006 Slovenian participants participated in the survey in year 2010, and 716 Slovenian participants took part in the research in 2021.

## Results and interpretation

The results were statistically analyzed by the analysis of variance. The analysis of variance is often used in research or statistical method, such as a t-test for independent samples, but in the analysis of variance, we can compare the average of three or more groups. As the dependent variable is selected year of observation, i.e. 2010 and 2021 regard to real estate living conditions (satisfaction with current living conditions, physical characteristic of property, proximity of vital accesses, maintenance costs, neighborly relations, and sense of security and sense of belonging zo neighborhood). We suppose that these differences arise mainly due to the occurrence of the Covid-19 pandemic, which marked us all significantly. Therefore, we analyze more detail the influences of the factors of preferences of potential buyers of real estate in post pandemic shown in Figure 1. Differences of statistically significant regarding to age, location of living and ownership of real estate property and "Covid" factors in post pandemic are shown in Table 2.

*Table 2: Differences in statistically significant regarding to age, location of living and ownership of real estate property regarding to "Covid" factors*

| Variable ("Covid" factors) | Age | | Location of living | | Ownership of property | |
|---|---|---|---|---|---|---|
| | Mean | Sig. | Mean | Sig. | Mean | Sig.*** |
| Walking access to vital facilities | 3.35 | 0.000 | 3.35 | 0.000 | 3.36 | 0.000 |
| Sense of cleanliness /users and environment) | 3.94 | 0.052 | 3.94 | 0.000 | 3.94 | 0.000 |
| Possibility of arranging home office | 3.64 | 0.000 | 3.64 | 0.000 | 3.66 | 0.000 |
| Technological equipment of property | 3.85 | 0.000 | 3.85 | 0.000 | 3.67 | 0.000 |
| Mud entrance room for disinfection | 2.57 | 0.000 | 3.56 | 0.000 | 3.58 | 0.000 |
| Stand-alone unit | 3.95 | 0.000 | 3.95 | 0.000 | 3.96 | 0.000 |

*** difference is statistically significant ($p<0.001$)

According to the age of the participants, there are statistically significant differences in the possibility of walking access to vital facilities, where the highest average level of agreement is expressed by the youngest participants (4.43) and the lowest by the middle generation (2.15). Regarding the possibility of arranging a home office, however, the rate of average level of agreement is growing with the age of participants. Participants aged 41 or over express the highest average level of agreement (3.87). The same applies to the technological equipment (3.85) and the quiet room (4.13).

Depending on the location where you live, a statistically significant difference regarding to "Covid" factors is reflected in all the observed factors. The importance of pedestrian access to vital facilities is significantly more pronounced by those living in urban centers (4.28) and less so by those living in scattered rural settlements (2.67). The reverse is true of expressing the importance of a sense of cleanliness of users or surroundings, where those living in the city center hand out a significantly lower average (3.59) free to those living in a dispersed rural environment (4,5). Regarding technological equipment, those living outside urban centers express a

higher level of agreement (4.5) and participants living in urban centers (3.46) have a lower average level of agreement. Interestingly, participants living outside meat centers also attribute a higher average level of agreement to the need for a room where there is peace and where they can retreat to (4.5), while those living in city centers express a lower average level of agreement. (3.58).

Also, in terms of property ownership statistically significant differences compared to Covid 19 are reflected in all the observed factors. Regarding the possibility of walking access to vital facilities the highest average agreement is expressed by property owners (3.97) and the lowest by tenants (3.18). Regarding the feeling of cleanliness, the highest average agreement is expressed by the owners (4.08). The same applies to the possibility of arranging a home office (3.94) and technological equipment (4.19). Interestingly, the highest level of agreement is expressed by property owners (4.21) and the lowest by tenants (3.90). To sum up, the result show that the highest level of agreement regarding possibility of pedestrian access to vital facilities according to age and ownership is expressed by the youngest participants and participants living in city centers. Regarding cleanliness the highest level of average agreement is expressed by those who live outside the city centers and property owners. Regarding the arrangement of the home office (and the same technological equipment) the highest level of average agreement is expressed by older participants, participants living outside the city centers and property owners. Older participants, participants who live outside the city centers and property owners, express regarding the mud room and stand-alone room the highest level of agreement.

## Conclusion

Our results confirm the expectations arising from the reviewed literature and other similar findings. Interesting are the differences between the participants in terms of age, location of residence and ownership of the property. The results thus reveal a number of new research questions that are important for the urbanism of the future and important for the management of a successful housing policy.

## Acknowledgement

This study was partially funded by the Slovenian Research Agency through the project: Evaluation of the sustainable development of the urban environment through the parameters of social infrastructure and life satisfaction, No. J5-3112.
This study was partially funded by the Slovenian Research Agency (Development of social infrastructure and services for community based long-term care J6-9396; Psychological and neuroscientific aspects of cognition, P5-0110).

## References

AlKhateeb, M., Palmer Peterson, H. (2021): The impact of COVID-19 on perceptions of home and house design in Saudi Arabia. *Strategic Design Research Journal*, *14*(1), 327-338. DOI: 10.4013/sdrj.2021.141.27

Bahadursingh, N. (2020): 6 Ways COVID-19 Will Change Home Design. Architizer. Retrieved from: https://architizer.com/blog/inspiration/industry/covid-19-home-design/

Bastič, M. (2006): *Metode raziskovanja*. Maribor, Univerza v Mariboru, Ekonomska poslovna fakulteta Maribor.

Chayka, K. (2020): How the Cononovirus Will Reshape Architecture. *The New Yorker*. Retrieved from: https://www.newyorker.com/culture/dept-of-design/how-the-coronavirus-will-reshape-architecture

Cieraad, I. (2020): Home. In *The International Encyclopedia of Anthropology*. H. Callan (Ed.). DOI:10.1002/9781118924396.wbiea1624

De Toro, P., Nocca, F., Buglione, F. (2021): Real Estate Market Responses to the COVID-19 Crisis: Which Prospects for the Metropolitan Area of Naples (Italy)? *Urban Sci. 5*(1), 23; https://doi.org/10.3390/urbansci5010023

Ebert, J. (2020): 10 ways interior design will change post-pandemic. Retrieved from: https:// www.homesandgardens.com/news/ways-covid-19-will-impact-the-future-of-interior-design-218355

Grum, B. (2014): Differences in Demographic Characteristics of Potential Acquirers of Real Estate Rights: Cases from Slovenia and Japan. *Current Urban Studies*. 2(2): 105-115.

Grum B, Kobal Grum D. (2020): The Impact of Real Estate Maintenance Costs on the Potential Resettlement of Elderly People: The Case of Slovenia*. Drustvena istrazivanja. 29*(3): 373-393.

Kloncz, S. (2020): T. How Pandemics Have Shaped Design and What We Can Expect Post-COVID19
Dura Supreme Cabinetry. Retrieved from: https://www.durasupreme.com/blog/how-pandemics-have-shaped-design-and-what-we-can-expect-post-covid19/

Kolomatsky, M. (2020): I Anyone Coming to See Listing These Days. Retrieved from: https://www.nytimes.com/2020/11/05/realestate/is-anyone-coming-to-see-listings-these-days.html

Larson, L. (2020): 8 New Things That Will Take Priority When Shopping for a Home. *U.S News Real Estate.* Retrieved from: https://realestate.usnews.com/real-estate/articles/8-new-things-that-will-take-priority-when-shopping-for-a-home

Le Roux, H. (2020).: Four architectural designs from history to remember in a post-Covid-19 world.
Scroll.In. Retrieved from: https://scroll.in/article/958255/four-architectural-designs-from-history-to-remember-in-a-post-covid-19-world

Makhano, S. (2020): Life after coronavirus: how will the pandemic affect our homes? Dezeen. Retrieved
from: https://www.dezeen.com/2020/03/25/life-after-coronavirus-impact-homes-design-architecture/

McKeough, T. (2020): How the Virus May Change Your Next Home. *The New York Times.* Retrieved from: https://www.nytimes.com/2020/05/12/realestate/how-the-virus-may-change-your-next-home.html

Morgan, B. (2020): 4 Ways COVID Has Changed Home Design. Retrieved from: https://www.forbes.com/sites/blakemorgan/2020/09/28/4-ways-covid-has-changed-home-design/?sh=3022ac986843

Petra, T.A. (2020): How will Covid-19 impact home design? Retrieved from: https://www.frankfranco.com/news/covid-19-impact-home-design/

Rassia, S. T. (2020). *How Architecture Fails in Conditions of Crisis: a Discussion on the Value of Interior Design over the COVID-19 Outbreak*. SN Operations Research Forum. DOI: /10.1007/s43069-020-0014-9

Rizatto, E. (2020): 8 Future interior trends for the homes driven by the corona virus. *ITALIANBARK.* Retrieved from: https://www.italianbark.com/future-interior-trends-interior-design-corona-virus/

Samah, S., Simbawa, R. (2020): Planning in the Aftermath of COVID-19: the influence of COVID-19 & the qarantine on our lifestyle & homes design. Webinar on ArchiNet. Retrieved from:
https://youtu.be/QC7h2kW_N0Y

Sharifi, A., Khavarian-Garmsir, A.R. (2020): The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. *Sci. Total Environ*, 749.

Spennemann, D., HR. (2021): Residential architecture in a post-pandemic world: implications of Covid-19 for new construction and for adapting heritage buildings. *Journal of Green Building,* 16 (1), 199–215, https://doi.org/10.3992/jgb.16.1.199

Tanrıvermiş. T (2020): Possible impacts of COVID-19 outbreak on real estate sector and possible changes to adopt: A situation analysis and general assessment on Turkish perspective. *Journal of Urban Management*, 9, 263-269.

Temeljotov Salaj, A., Lindkvist C. M. (2020): Urban facility management. *Facilities,* 39(7/8): 525-37.

Wigglesworth, S. (2020). The Design of Homes Post-Covid. *Design Curial.* Retrieved from: http://www.designcurial.com/news/the-design-of-homes-post-covid-7981176

Yuko, E. (2020): From Closets to Subway Tile: How Previous Epidemics Shaped Design. Architectural
Digest. Retrieved from: https://www.architecturaldigest.com/story/subway-tile-design-in-epidemics

# Dealing with two pandemics at the same time: Covid19 and dementia

**Katja Horvat**

**Brigita Novak Šarotar**

University Psychiatric Clinic Ljubljana, Slovenia
horvatk94@gmail.com
brigita.novak@mf.uni-lj.si

## Abstract

With the year 2020 the world encountered a new pandemic in addition to the already existing one, the pandemic of neuropsychiatric diseases. Covid-19 and the precautions to prevent its spread challenged everyone, especially the many patients suffering from dementia, their caregivers, and the long-term care facilities. These patients are usually older and comorbid, which predisposes them to severe complications when infected with this respiratory virus and predicts worse outcomes. Living in long-term care homes the infection is easier to spread, since there is more direct and indirect contact with potential infection carriers. Long-term homes were the ones who had the worst breakouts and the worst fatality rates during this pandemic so far. With severe cognitive decline it is also more difficult to adhere to preventative measures. Not only are these harder to carry out in this group, they also interfere with life-style routine and introduce more changes, which are known to be upsetting to the people suffering from dementia.This literature review was conducted to discover how different countries tackled the pandemic measures within this population, by accomodating their facilities and services. We expected to find solutions that were not optimal due to unpreparedness and are now discouraged, as well as some good examples which we could propose for further dealings in such situations and to have in mind for facility management in new or existing facilities.With one search inquiry on PubMed we included 124 articles, that were published worldwide from January 2020 to May 2021. In this review, publications on dementia patients, either living at home or in long-term facilities, were included as well as reports on patients' caregivers during this pandemic. Articles that are mainly about the infection or postinfection neuropsychiatric symptoms were excluded. The facilities and nations had different experiences of protecting patients with dementia during covid-19 pandemics, depending on how equipped they were beforehand. The main preventative measure were wearing protective items and reducing contact with others. This led to social isolation and confusion of the affected and to the burnout and extra stress for the caregivers and nursing staff. On the other hand, some found ways to comfort patients. We expect that these experiences will induce more dialogues about national policies that will take into account aging demographics and neuropsychiatric patients and propose systemic long-term solutions for their safety and well-being.

Keywords: COVID-19, dementia, social isolation, facility management, literature review.

## Introductıon

As the world in the beginning of COVID-19 pandemic witnessed the increase in SARS-CoV-2 confirmed cases, people caring for elderly became apprehensive. Vulnerable patients, such as elderly people with cognitive impairment or dementia, have an increased risk of serious morbidity, admission to intensive care units, and death when infected with COVID-19 because of their advanced age and frequent medical comorbidities. (1) In Bergamo, the most affected province in Italy in the first few waves, lost 1.89%, 4.84%, and 11.06% of the entire population in the age groups 70–79, 80–89, and 90+, respectively. (2) In the region more than 600 out of 6400 care home residents died only in March 2020. (3) The studies show that the elderly people with dementia are not only more fragile because of the disease alone, but also very difficult to follow through all the preventative measures that the general population was advised to adhere to. (4)

First, individuals with dementia experiencing disinhibition and psychosis may place themselves at higher risk of infection by increasing their proximity to others. The individual's ability to understand, remember, and therefore, adhere to instructions regarding isolation or hand hygiene is diminished. Third, being unaware of their situation prevents them from adjusting their behaviors, taking necessary precautions, and seeking help. Fourth, these individuals depend on others, so close physical contact and potential exposure to a virus carrier is frequent and necessary. Fifth, healthcare workers may work with many patients, increasing the risk of infection. Sixth, shared rooms and physical layout may limit possible isolation. Dementia is associated with frailty, functional decline and dysregulation of immune and inflammatory mechanisms, meaning higher risk of infection and mortality if infected. (5)

These patients may not wash their hands or touch their faces, because they may simply forget or may not understand that the world is battling with pandemics. If admitted to hospitals or living in long-term care homes, they may remove masks, enter the bed spaces of other patients in hospitals or care homes, come in contact with high-touch surfaces or equipment, or reach out and touch clinical staff. Moreover, personal protective equipment may be frightening and confusing for people with dementia. Screening with nasopharyngeal swabbing or blood sampling may therefore not be possible. (6) As patients become infected, they are more likely to exhibit confusion. Many of these patients develop restlessness, anxiety, and agitation, and their attempts to get out of bed can result in the need for physical restraint and/or pharmacological sedation. (7)

As the disease progresses, the individual becomes gradually more dependent on others. (6) Some find new living arrangements, while others stay at home. If they stayed at home, the caregiver burden increased since they were advised not to run the errands themselves anymore. (1)

On the other hand, several features of the COVID-19 infection, i.e. the duration of the incubation period, asymptomatic spread, and atypical presentations in older adults, represent challenges to infection control in nursing homes. (8)

## Aim

The aim of our study was to gather recommendations during COVID-19 pandemic and lockdowns, targeted at people with dementia. We hoped to find practical solutions on how to prevent the spread of SARS-Cov-2 without reducing patients' comfort. The findings could be used further on as guidance in facility management of healthcare and long-term care facilities.

## Methodology

This literature review was conducted by using the PubMed database with following keywords: *dementia, dementia care, dementia patients, people with dementia, long-term care, facilities, COVID-19, SARS-CoV-2, pandemics, quarantine, lockdown, isolation, recommendations*. 45 articles were selected with a search inquiry (covid19[Title/Abstract]) AND (people with dementia[Title/Abstract]) and filter: *free full text*. The search was conducted on 4th of August, 2021. All of the articles were published in the years of 2020 and 2021. The articles not in English were excluded. Articles that did not meet the aim, e.g. articles about the impact of restrictions and recommendations on health of people with dementia or their caregivers, were omitted. As literature on the usage of digital technology during pandemics is too broad, it was not included. The articles that were not specific enough in their recommendations were left out as well. 6 articles remained.

## Results

The 6 articles chosen in our analysis were therefore written in English, in the years of 2020 and 2021. They are focused on recommendations and restrictions during COVID-19 measures against infection, aimed specifically at patients with dementia, their caregivers and all their stakeholders, as well as recommendations in providing comfort to patients and their caregivers.

| Reference | Tittle | Authors | Year | Recommendations |
|---|---|---|---|---|
| 9 | Tackling challenges in care of Alzheimer's disease and other dementias amid the COVID-19 pandemic, now and in the future. | Mok VCT, Pendlebury S, Wong A, Alladi S, Au L, Bath PM, et al. | 2020 | Recommendations on control of the infection, care for basic needs, challenging behaviours, comprehensive cognitive enhancement, clinical management of cognitive disorders, concerns for caregivers and telemedicine. |
| 10 | Achieving safe, effective, and compassionate quarantine or isolation of older adults with dementia in nursing homes. | Iaboni A, Cockburn A, Marcil M, Rodrigues K, Marshall C, Garcia MA, et al. | 2020 | Case report on caring for patient with dementia in COVID-19 setting. |

| | | | | |
|---|---|---|---|---|
| 11 | Practical nursing recommendation for palliative care for people with dementia living in long-term care facilities during the COVID-19 pandemic: a rapid scoping review. | Bolt SR, van der Steen JT, Mujezinović I, Janssen DJA, Schols JMGA, Zwakhalen SMG et al. | 2021 | Recommendations for nursing staff on advanced care planning, physical, psychological, social and spiritual aspects of care, care of the dying, bereavement care, ethical aspects of care, and structure and processes of care. |
| 12 | The challenges of COVID-19 for people with dementia with Lewy bodies and family caregivers. | Killen A, Olsen K, McKeith IG, Thomas AJ, O'Brien JT, Donaghy P, et al. | 2020 | Recommendations for caregivers (physical and psychological aspects of care). |
| 13 | Care for older people with dementia during COVID-19 pandemic. | Emmerton D, Abdelhafiz AH. | 2021 | Acute, transitional, long-term and palliative care for dementia patients. |
| 14 | Interim guidance for health care professionals and administrators providing hospital care to adult patients with cognitive impairment, in the context of COVID-19 pandemic. | Martin-Khan M, Bail K, Yates MW, Thompson J, Graham F; Cognitive Impairment and COVID-19, Hospital Care Guidance Committee. | 2020 | Clinical and government strategies for COVID-19 care. |

General measures

The biggest emphasis as a general measure is on controlling the infection spread. To prevent the infection it is advised to stay at home, avoid visits from high-risk persons and to practice diligent self-sanitisation (washing hands, changing clothes) and sanitision of personal belongings (cell phones, handbags,...). Using online service for delivery of groceries or meals may also be helpful. (9)

People with dementia

Instead of activities outdoors, people with dementia could engage in indoors activities such as arts, crafts, reading, etc. Being outdoors is recommended if physical distance is possible (e.g., sitting in the garden), otherwise it is better to avoid crowded areas. Simple exercises at home are beneficial to keep fit and to prevent boredom. (9, 12) Activities, such as hobbies and exercise, could be done via video conference to connect to others. Participation in cognitive and physical rehabilitation programs can be done via video conference as well. (9)
In case of leaving home safe transport needs to be planned. (9)

Caregivers of people with dementia

The caregiver should be trained in infection control, wear personal protective equipment and have regular SARS-CoV-2 screening. (9, 13) Caregivers can video

call to keep in touch, as well as provide reminders by phone or arrange alarms that can be used to remind people with dementia of good hydration or taking pills. The caregivers have to be mindful of preventing further complications of primary disease (e.g. falls), as they may mean a person has to be hospitalised and therefore at higher risk of infection. (12)

Caregivers should share simple messages about the current pandemic, emphasising their temporary nature. (12). They have to be aware of delirium as a manifestation of COVID-19. Caregivers could video-record the challenging behaviour and submit it to the health care professional for advice. (9)

If the patient is taken to a hospital or admitted to a long-term care facility, the caregiver can provide them comfort by sending items such as photographs, playlists or familiar scents. (12). Long-term plans for dementia patients should be discussed among patients and caregivers as well. (9)

Caregivers should concentrate on things they can control (12). It is important to encourage caregivers to take care of their mental health through exercise, hobbies and taking care of their needs. Regular screening for mental health issues should be provided. (9)

Healthcare workers

Health workers can provide support on many levels.
First of them is to continue work on the primary healthcare level. Personal needs and chores of patients could be provided by a healthcare professional, if the patient is no longer able to tend to themselves. Nursing care at home (wound dressing, …) should be continued.

Healthcare professionals informal caregivers on patient care. Healthcare professionals should therefore provide simple instructions and consultations via phone or videoconferences to caregivers, e.g. in handling behavioral problems. (9) Caregivers should be educated in monitoring vital signs (blood pressure, temperature, blood glucose, oxygen saturation). If necessary, home visits should be continued. Patients and their caregivers should be reminded to refill drugs. Wishes regarding receiving life-sustaining treatment should be discussed in advance. (9) Avoiding unnecessary hospitalisation is important for people with dementia, who can develop confusion and worsening of symptoms in an unknown environment (12).

Healthcare professionals should review advanced care plans, especially in case of potential COVID-19 infection. Nursing staff can be of guidance to the patient and their family in preparing a plan, providing information on what procedures may be needed and then adjust it to patients' wishes. The first initiation of advanced care plans in COVID-19 could be especially coloured in emotions, such as fear. Identification of anticipatory grief and bereavement plans can also take place. Plans should be digitally documented, available to everyone necessary in acute situations. Follow up is recommended to address additional spiritual or medical questions. Preferred place of death can also be discussed. Complex situations and goals of

care should be discussed in interprofessional care. The staff is advised to be sensitive to proxy-decision makers who have to make difficult decisions quickly. (11, 13, 14)

Palliative care should be considered early on in communication with family and palliative teams. (13) During advanced caring, pay attention to personal values and desired practices. Provide family with resources for support. Be mindful of complicated grief that arises due to death of COVID-19 infection. (11)

Recognise when death is imminent and advocate for families to say goodbye in person or use technology to connect them. Provide information and support for the family in time of death and arranging a burial. (11)

Trained healthcare professionals could support caregivers also on another level, such as providing relaxation methods online and encouraging caregivers to participate in self-help support groups. (9, 13) It is important for health care workers to give credit for caregivers' stressful situation and effort. (9)

Healthcare professionals could join or arrange support groups for emotional distress caused by pandemic. (11)

Hospitals and long-term care facilities

Signs should be put up for patients' orientation of space, time and situation. (10)
Facilities should ensure sufficient personal protective equipment and regular screening for both patients and healthcare workers. (9)

Activities should be adjusted to keeping physical distance (staged meal times, smaller group activities, ..). Consultations are best provided online. Staff could provide video conferencing between residents and relatives. Non-pharmacological therapies that could be delivered online (music therapy) should be provided. New technology such as virtual reality and social robots could be tried as well. (9)

Staff should be aware that isolation may cause severe emotional response and mental health issues. Minimise exposure of residents to negative media information, provide explanations in a reassuring manner. Contact patients regularly to ask about their wellbeing. Encourage them to engage in activities they like (use old photographs, keep a routine, encourage video contact with a family or for a family to drop off packages). Support time orientation with appropriate lightning and clocks. Assign staff that is familiar to the patient. (11)

Encourage regular movement. Provide explanations to residents on how to maintain proper hand hygiene (instruction boards or signs in bathrooms, demonstrate, use hand sanitizer as alternative, educate people how to sneeze and cough) and remind them of physical distancing (e.g. with indoors activities). Do not argue about COVID-19 regulations in front of patients. Recognise signs of COVID-19 infections and keep careful documentations of changes in health status. Respond to behaviour that could lead to infection, especially of patients that are COVID-19 positive. (11,12,14).

Isolate people with dementia, consider cohort units, which make some freedom of movement possible, as well as try to avoid pharmacological and restraining measures. (11, 9)

Management should provide staff trained in delirium care to look after patients with dementia with COVID-19. Common reversible factors for delirium should be monitored closely and corrected when possible. (9, 12, 14) . The management should be aware of the moral distress of nursing staff due to potential harms to patients associated with isolation on one hand, and severe consequences if infection control is not sufficient on the other hand. (10) Moral and emotional distress may lead to burnout. Allow your staff to take breaks, provide them with information on mental health and support. (11)

Lifesaving resources

If the number of COVID-19 cases exceeds the resources, triage protocols will be needed. A dementia diagnosis by itself should not be used as exclusion, since patients are affected differently. (9, 13)

Government

Government should review policies, procedures, guidelines, risk management systems and staff training. Organisation of separate wards with healthcare workers skilled in managing cognitive impairment challenges is necessary. (14)

## Discussion

The current situation presents a clear ethical dilemma, i. e how to keep people, especially vulnerable people, safe from infection without causing damage to their physical and mental health. Despite pandemics being a subject of discussion for epidemiologists ever since globalisation, the rest of the world seemed to be taken by surprise and unprepared. After the initial shock, most countries responded to this threat with isolation or even lockdown and the usage of digital technology to breach the physical gap.

For people with dementia and for people caring for them the two dangers (i.e. the infection and isolation) present an even bigger challenge. Exercising outdoors, socialising, frequent doctor consultations and exercising autonomy were always recognised as a staple in treating and postponing cognitive decline. With COVID-19 this became all but impossible. People with dementia are advised to stay at home, to reduce contact with others to a minimum, to not attend family meetings, to call before visiting a doctor, to avoid going to the store, … and with that they lose their social connection and autonomy. The fear of getting infected is always present, as well as the fear of sadness and loneliness experienced by the most vulnerable. This fear affects patients themselves, their loved ones and caregivers, and others caring for these patients.

Reports from all around the world showed very similar isolating and comforting measures. The foundations for it are physical distancing and limiting contacts for

socialising. The next important step is providing regular screening for COVID-19, which is used in situations where isolation is not possible.

Very important part of it became recognising COVID-19 symptoms, confirming the diagnosis and then isolating the affected. All of this meant that activities of patients, the burden of caregivers, work of healthcare staff, and long-term care and healthcare facilities changed, adapted. Patients need new structure of the day and activities that are possible staying at home or indoors. The caregivers had to be educated on recognising symptoms of COVID-19, the primary disease and on monitoring their vital signs. The communication with healthcare professionals is based on long distance technology. The caregivers have to stay safe and isolate themselves to not infect the persons in need of care. Hard questions such as what to do in case of COVID-19 infection and advanced care plans have to be addressed. Personal protective equipment has to be worn at all times.

With isolations, screening, changing of surroundings, wearing personal protective equipment, changing routines, minimising staff, forbidding visits, etc. the healthcare facilities became an unwelcoming surrounding to these patients. To counteract that the healthcare workers are advised to try to provide information in a calm way, to patiently remind residents of new protocols and hygiene measures and to cue patients with visual aids. As a lot of in person activities are cut, they can sometimes be supplemented (exercise, group activities, consultations led online). Digital technologies should be provided to maintain contact with patients and their loved ones, especially in severely distressed or dying patients. As delirium is frequent, the guidance on restraining is needed. Dementia by itself should not be used as an exclusion criteria in case of shortage of life support systems.

The caregivers and healthcare professionals should not forget their own health and needs either.

Literature provided many recommendations on providing a safe and comfortable environment to patients with dementia, but most articles mentioned the same suggestions. This can mean that the whole world agrees on what is necessary. The articles do not mention a single measure that would be completely optimal in protecting patients with dementia, without having to choose between infection and loneliness. This could be vaccination against SARS-CoV-2, which is now available in many countries for more than a half year. Regardless, as the percentage of the vaccinated population is not sufficient, the threat of new variants spreading is still very real. So far, achieving sufficient herd immunity seems to be the only hope that this virus will not be sweeping long-term facilities, forcing us in isolation and causing stress again. Having said that, there is always a possibility that another virus will cause a pandemic and the measures will have to be repeated.

The COVID-19 pandemic was a great opportunity to see shortcomings of our current care and plans for patients with dementia. New procedures, guidelines, risk management systems and staff training are needed. Our hope for the future is that national policies on aging populations and long-term care facilities will be taken more seriously, given more attention and given more financial, material and human resources.

## Conclusıons

The literature review provides an overview of measures taken in different countries to protect people with dementia against COVID-19 infection and to comfort them due to negative effects from isolation. The recommendations are aimed at people with dementia themselves, at their formal and informal caregivers, healthcare professionals, hospitals, long-term care facilities and the government. Using personal protective equipment, reducing social contacts, confirming COVID-19 cases, isolation, seeking help with personal hygiene and errands, different activities, adjusting activities to safe physical distance, using telecommunication tehnology, planning long-term care and seeking psychological help were mentioned. The aim of this article was not to evaluate these measures or to discover the impact on people with dementia and their loved ones. The single most important public health measure, vaccination, is not mentioned in the articles reviewed. In the future, the impact of the measures and the impact of vaccination would be interesting and necessary to look further into.

## References

1. Cuffaro L, Di Lorenzo F, Bonavita S, Tedeschi G, Leocani L, Lavorgna L. (2020) Dementia care and COVID-19 pandemic: a necessary digital revolution. *Neurological Sciences*, 41(8):1977-1979.

2. Modi, C., Böhm, V., Ferraro, S. et al. (2021). Estimating COVID-19 mortality in Italy early in the COVID-19 pandemic. *Nature Communications*, 12, 2729.

3. Trabucchi M, De Leo D. (2020). Nursing homes or besieged castles: COVID-19 in northern Italy. *Lancet Psychiatry*,7(5):387-388.

4. Suzuki M, Hotta M, Nagase A, Yamamoto Y, Hirakawa N, Satake Y, Nagata Y, Suehiro T, Kanemoto H, Yoshiyama K, Mori E, Hashimoto M, Ikeda M. (2020).The behavioral pattern of patients with frontotemporal dementia during the COVID-19 pandemic. *International Psychogeriatrics*. Cambridge University Press; 32(10):1231–4.

5. Keng A, Brown EE, Rostas A, Rajji TK, Pollock BG, Mulsant BH, Kumar S. (2020). Effectively Caring for Individuals With Behavioral and Psychological Symptoms of Dementia During the COVID-19 Pandemic. *Frontiers in Psychiatry*. 6;11:573367.

6. Mok VCT, Pendlebury S, Wong A, Alladi S, Au L, Bath PM, Biessels GJ, Chen C, Cordonnier C, Dichgans M, Dominguez J, Gorelick PB, Kim S, Kwok T, Greenberg SM, Jia J, Kalaria R, Kivipelto M, Naegandran K, Lam LCW, Lam BYK, Lee ATC, Markus HS, O'Brien J, Pai MC, Pantoni L, Sachdev P, Skoog I, Smith EE, Srikanth V, Suh GH, Wardlaw J, Ko H, Black SE, Scheltens P. (2020) Tackling challenges in care of Alzheimer's disease and other dementias amid the COVID-19 pandemic, now and in the future. *Alzheimer's & Dementia,*16(11):1571-1581.

7. Ryoo N, Pyun JM, Baek MJ, Suh J, Kang MJ, Wang MJ, Youn YC, Yang DW, Kim SY, Park YH, Kim S. (2020). Coping with Dementia in the Middle of the COVID-19 Pandemic. *Journal of Korean medical science*. 2;35(42):e383.

8. Iaboni A, Cockburn A, Marcil M, Rodrigues K, Marshall C, Garcia MA, Quirt H, Reynolds KB, Keren R, Flint AJ.(2020). Achieving Safe, Effective, and Compassionate Quarantine or Isolation of Older Adults With Dementia in Nursing Homes. *American journal of geriatric psychiatry*, 28(8):835-838.

9. Mok VCT, Pendlebury S, Wong A, Alladi S, Au L, Bath PM, Biessels GJ, Chen C, Cordonnier C, Dichgans M, Dominguez J, Gorelick PB, Kim S, Kwok T, Greenberg SM, Jia J, Kalaria R, Kivipelto M, Naegandran K, Lam LCW, Lam BYK, Lee ATC, Markus HS, O'Brien J, Pai MC, Pantoni L, Sachdev P, Skoog I, Smith EE, Srikanth V, Suh GH, Wardlaw J, Ko H, Black SE, Scheltens P. (2020) Tackling challenges in care of Alzheimer's disease and other dementias amid the COVID-19 pandemic, now and in the future. *Alzheimer's & Dementia,* 16(11):1571-1581.

10. Iaboni A, Cockburn A, Marcil M, Rodrigues K, Marshall C, Garcia MA, Quirt H, Reynolds KB, Keren R, Flint AJ. (2020). Achieving Safe, Effective, and Compassionate Quarantine or Isolation of Older Adults With Dementia in Nursing Homes. *American Journal of Geriatric Psychiatry*, 28(8):835-838.

11. Bolt SR, van der Steen JT, Mujezinović I, Janssen DJA, Schols JMGA, Zwakhalen SMG, Khemai C, Knapen EPAGM, Dijkstra L, Meijers JMM. (2021). Practical nursing recommendations for palliative care for people with dementia living in long-term care facilities during the COVID-19 pandemic: A rapid scoping review. *International journal of nursing studies*. 113:103781.

12. Killen A, Olsen K, McKeith IG, Thomas AJ, O'Brien JT, Donaghy P, Taylor JP. (2020). The challenges of COVID-19 for people with dementia with Lewy bodies and family caregivers. *International journal of geriatric psychiatry,* 35(12):1431-1436.

13. Emmerton D, Abdelhafiz AH. (2021) Care for Older People with Dementia During COVID-19 Pandemic. *SN comprehensive clinical medicine*, 27:1-7.

14. Martin-Khan M, Bail K, Yates MW, Thompson J, Graham F. (2020). Cognitive Impairment and COVID-19, Hospital Care Guidance Committee. Interim guidance for health-care professionals and administrators providing hospital care to adult patients with cognitive impairment, in the context of COVID-19 pandemic. *Australasian journal of ageing*, 39(3):283-286.

# Sustainable refurbishment of buildings and specific triggers for renovations

**Živa Kristl**

New university, European faculty of law, Nova Gorica
ziva.kristl@epf.nova-uni.si

## Abstract

Sustainable refurbishment is a vital step toward decarbonization of building sector. It is well known that buildings are one of the largest energy consumers in Europe and are responsible for a large share of the EU's emissions. About 75% of the existing EU building stock is below existing energy efficiency requirements, thus renovation of both public and private buildings is essential. The data, however, show that only 1% of buildings undergo energy efficient renovation every year. This means that current levels of investment in sustainable refurbishment are not enough to meet the EU's climate and energy goals. Moreover, a large majority of residential energy renovations take place in combination with non-energy renovation measures. The studies show that majority of energy renovations can be defined as below threshold or light renovations, therefore a gradual effort will be needed to achieve greater energy efficiency. Among investors, as strong triggers are considered repairs, replacements and maintenance. If investing in energy renovation, the main benefits are expected in the field of budget and health-related aspects. This is important information which can help adjust the future approaches. In 2020 European Commission launched The European Green Deal initiative (COM (2020) 662) which aims to substantially increase annual energy renovation rates in the next ten years. The Commission linked the initiative to the New European Bauhaus, which attempts to connect culture and social inclusion to science and technology. In this context the primary interest of the study are various renovation opportunities. The diversity of investment situations is undoubtedly a challenge and is many times linked to energy poverty and lack of information. As presented on the basis of three examples, each of the situations is specific and, in addition to the technical solutions, also requires a social clarification. Such approach offers the opportunity to better understand the user needs and to adapt the solution to specific situation.

Keywords: sustainable refurbishment, residential building, European initiative.

## Introduction

In the last decades, the regulative measures, especially the Energy Performance of Buildings Directive (EPBD, 2018) has achieved a substantial progress in the field of energy consumption of buildings. Currently, new buildings typically operate with less

than half of the energy consumed by buildings built 20 years ago (Zangheri et al., 2021). However, it is important to understand that approximately 80% of today's buildings will still be in use in 2050 and 75% of this stock is energy inefficient (Hermelink et al., 2019). In the past years very low energy renovation rates were reported across the EU. The most pronounced problem is that more than 90% of residential energy renovations take place in combination with non-energy renovation measures. On the other hand, the rate of "non-energy" renovation measures is significantly higher than the rate of pure energy renovations (Hermelink et al. 2019). To achieve the European Green Deal goals (COM 640, 2020) and carbon neutrality by 2050, the energy renovation rates will need to at least double in the coming decades. European regions and cities will have a major role in climate/energy action in the EU and globally (Zangheri et al., 2021).

The research work and reports highlight problems of low renovation budgets. It is more difficult for poorer people to access different financing options, so existing retrofit programs for low-standard buildings are based on weatherization of households (Zangheri et al., 2021; Bradshaw, Bou-Zeid, and Harris, 2014). According to Ugarte et al. (2016) two of the main problems that low-standard households face are uncomfortable indoor temperatures and high humidity levels. Some researchers also link these problems with poorer air quality (Clasuen et al., 2012) and emissions from construction materials (Cheong et al., 2001; Dovjak et al., 2013). Although human adaptation to temperatures is possible to some extent (Ioannou et al., 2018), inappropriate temperature levels (Frontczak and Wargocki, 2011) and related health problems (SCHER, 2007; Fisk et al., 2007; Mudarri and Fisk, 2007) can be very problematic. Improper health conditions can also be worsened by noise exposure (Ryu and Jeon, 2011) and inadequate daylight exposure (Frontczak et al., 2012). Some locations are also exposed to external influences such as polluted outside air and external noise sources, which can further exacerbate the problems (EEA, 2017; EEA, 2014). Moreover, energy retrofitting of architectural heritage often results in inappropriate interventions because the stakeholders do not perceive these buildings as a heritage (Kristl et al., 2020).

This article presents a comparative analysis of three studies dealing with residents and their attitude to energy renovation of buildings. The studies were conducted in various countries and cover residents and multi-apartment buildings constructed in different periods which all need a thorough renovation. Problems linked to environment, quality of indoor environment, interventions into building tissue, influence on built heritage, level of information and engagement of residents were studied.

The main research questions are:

- How comparable are the problems in terms of location and cultural environment?
- How they influence unsupervised self-renovation work that can result in alteration of the (heritage) buildings, have negative consequences on the maintenance backlog and unsustainable technical solutions?
- How well do we understand technical, economic, social and behavioral as well as regulatory and financial challenges and opportunities of sustainable self-renovation of (heritage) buildings?

- How can we employ holistic approaches that will increase the sustainable renovation rate that is currently lagging behind due to socio-cultural barriers?

The used approach is linked to the New European Bauhaus initiative (2021) which attempts to connect culture and social inclusion to science and technology. Such process can have implications on both the economy and society, thus requiring a multidisciplinary approach.

**Overview of the three selected studies**

Dock workers' settlement

The study (Senior et al., 2021) was conducted on the case of Svartlamon in Trondheim, Norway, inhabited by alternative community and later declared as the first urban ecological research area in Norway. The neighborhood was established in 1860 as a settlement for dock workers, sailors and factory workers (Nissen, Europan10, 2010). The purpose of the study was to meet the challenges related to poor maintenance, sustainable refurbishment and important historical and cultural heritage. A questionnaire survey and field work provided data about demography, living conditions, the self-renovation habits, culture and available technologies within the households as well as the state of buildings and perception of innovative sustainable technologies. The investigation was steered in the directions of finding solutions to improve the living conditions of a low-income intentional community, widening the reuse of materials as a part of circular economy solution and finding high quality LCC solutions for specific problems.

The questionnaire results show that the social aspects were very important for residents. These include sense of community, democratic decision making, communal facilities and green areas, economic freedom and general feeling of autonomy in case of various incentives. Most respondents expressed willingness to have an even larger community engagement in the future. The results also illustrated cases of poor indoor environmental quality like shared facilities but also occasionally inadequate thermal conditions and humidity problems. Even though the residents were willing to accept somewhat poorer living standard, such conditions over a longer period could cause the structural and health problems due to humidity accumulation and growth of molds and fungi. The survey also indicated cases of inefficient ventilation and air leakage through walls and windows. The residents stated problems with sound transmission between the living units. An inventive way to overcome this problem was created an agreement between the residents to respect a certain schedule of "making noise". Some outside noise sources that occasionally cause problems were also detected

The results show that the studied building envelope is technically inadequate, causing loss of heat, air leakage and moisture accumulation. Even though constructing with low budget and little knowledge, the residents constantly create original ways to address their problems, like engage in self-renovation and repurpose waste materials. The study proposed a soft bottom-up approach as the most appropriate. It considered social and cultural specifics of the area but also the general directions of the sustainable development. In order to keep a sustainable,

low-cost urban living model, recommendations for future self-renovation works were prepared. They provided some key-knowledge to the inhabitants about thermal and sound insulation, structural details, indoor climate and energy efficiency. They are a valuable guidance for non-professionals to make better-informed choices when engaging in self-renovation projects with information on technically correct solutions and sustainability effect of the interventions.

Residential blocks built before 1999

The study (Konjusha, 2021) was conducted in seven neighborhoods in Pristina (Kosovo) consisting of apartment buildings built before 1999. The purpose of the study was to establish the state-of-art in the neighborhoods and propose a methodology for energy renovations regarding six aspects; **environmental impacts including emissions, financial effects** at the building and single apartment level, **socio-cultural and functionality aspects** considered in terms of quality of living environment and health impacts, **technical** aspects including above all quality of building envelope and temperature regulation and monitoring, **process quality** in terms of planning of energy efficiency measures and l**ocation profile**. A questionnaire survey and building audits provided demographic and ownership data, information on perception of residents on the quality of indoor environment, share of income spent on running costs, energy consumption and state of buildings including technical systems.

The questionnaire results show that majority of the apartments are owned by residents and they are not planning to move. The highest mean acceptability was observed for the inner air quality and the lowest for the outer air quality. Around two thirds of the occupants perceive outer air as polluted and the perceived level of pollution does not change substantially during the winter and summer. A large share of respondents also senses kitchen and bathroom odors from the neighboring apartments. They perceive the air in their own apartments as good. The survey though indicated cases of insufficient ventilation of the apartments and air leakage through windows. Almost half of the respondents stated that they felt thermal discomfort during winter due to inappropriate temperature, and in some apartments the residents report overheating during winter and summer. Respondents declare that they mostly control the temperature by opening windows and blame obsolete or nonfunctioning heating system that disables them to regulate temperature in a suitable way. The survey also detected problems with leaking radiators and damaged pipes. The residents also stated problems with sound transmission between the apartments and staircases. Around a quarter of the residents also perceived outside noise sources as disturbing.

The survey shows that over 90% of the respondents do not have any temperature-measuring device or heat meters in the apartments. They are aware of the problems with obsolete heat distribution system and are willing to invest into energy renovation measures and improvement of living environment. The motivation for refurbishment is also better control over energy consumption and lower running costs. The survey found that some owners have already carried out some improvements, most frequent are the replacement of windows, radiators and thermal insulation of outer façade.

But there is lack of organized initiatives that would enable energy retrofitting measures on a larger scale or coordinated measures like mounting of additional thermal insulation of the facades, replacement of the building heating installation and similar. Lack of such initiatives majorly impedes the possibility for energy renovations to be comprehensive and for measures that would lead to significant improvements at a general level.

The proposals for energy renovation actions include measures at the building/neighborhood and municipality/government level. They include raising awareness of the residents about the possible interventions in several fields and their effects, setting up financing possibilities that can enable more informed refurbishments, using the proposed methodology for development of building management approaches and focusing on main challenges like introducing building management systems, setting up rules and methodologies for energy refurbishments, education of stakeholders.

Modernistic residential blocks

The study (Antonič Kogoj, 2021) was carried out on the example of six apartment blocks in the center of Nova Gorica (Slovenia), built between 1949 and 1951. The subject of the quality of living space and awareness of the architectural heritage of modernism in Nova Gorica is topical, as the buildings are old enough to need a thorough renovation. Currently, the buildings in discussion are not fully protected as architectural heritage, however, their urban design, green areas between the buildings and southern facades are already listed. The study was carried on the basis of a survey, inspection of buildings, conversation with the buildings' management company and several local institutions. The first set of the questionnaire covers demographic data of respondents, the second set deals with the general characteristics of real estate, the third set refers to the quality of living conditions, the fourth set covers interventions on real estate and housing and the fifth set covers living environment and architectural heritage. The aim was to determine the level of awareness of residents about the quality of their living environment and the importance of protecting the modernistic architectural heritage, define the main problems and draw attention to potential tasks in the future.

In general, respondents are satisfied with their physical environment, and consider that the city has more positive than negative characteristics. Most respondents have lived in their apartments for decades and are mostly homeowners. They are satisfied with the size and layout of the apartments. They all answered that they have adequate access to green areas. A large portion expressed satisfaction with the daylighting, the sunlight exposure, the view from the apartment and the air quality in the apartment. Perceived quality of outdoor air is predominantly low. The dissatisfaction of the respondents was found also in the thermal comfort, as a large proportion of the residents have problems maintaining the appropriate temperature in the apartments. Almost half of the respondents mention problems with too cold temperature in winter and overheating in summer. Residents also declared dissatisfaction with noise insulation and often mentioned the transmission of excessive noise between apartments and excessive external noise. A large proportion also mentioned the desire to install elevators.

Since the buildings were built seven decades ago, the causes of poor thermal comfort can be found in the building envelope, which is not thermally insulated. Leaky building furniture also contributes to heat loss in winter. Given the observed interventions on the facades, it is reasonable to assume that the residents solved the problems with thermal discomfort partly and with interventions that do not require the consent of co-owners. Most commonly they replaced dilapidated windows, installed external shutters, glazed balconies and installed local air-conditioning. Interventions on real estate (e.g., replacement of windows, glazing of balconies) were performed on just under half of the apartments, according to the survey answers. When inspecting the real estate, the interventions were carried out on almost all the windows of the buildings, so there must have been even more actual interventions than reported by the respondents, the study reveals.

Respondents in principle support the protection of architectural heritage, but in concrete actions some act in the contrary way, which is also reflected in the external appearance of buildings. From the situation on the buildings, it can be concluded that the owners mostly decided on the interventions independently, as the interventions took place in different time periods and with the use of different building elements. Due to the forthcoming increased opportunity for energy and other renovations, it would be prudent to prepare a strategy and binding guidelines for the renovation of buildings at the municipal level, including protected areas. This would establish a legal basis that would enable the stakeholders to make more informed and appropriate decisions. More than half of the respondents are not aware that they live in a building that is part of a potential architectural heritage. When asked how important the appearance of a building (facade) is for users, about half of the respondents believe that the appearance of a building is irrelevant or that the appearance of the facade is decided by others and cannot be influenced. The study found there is a certain awareness among the respondents that the relevant institutions should be consulted regarding the interventions on the building heritage, which is an excellent starting point for further steps. However, much remains to be done to improve the situation. In the future, there is room for improvement, especially in the interconnection and cooperation of all stakeholders and the transparency and viability of procedures for approving interventions. There is a need to raise awareness among the general public about possible approaches to renovating existing buildings. Lack of awareness of the qualities of architectural heritage (and architecture in general) and lack of awareness that residents can co-create further steps in the renovation of buildings in the city of Nova Gorica may have lasting consequences.

## Discussion

### Methodology and typology

The buildings in question were built in different periods but are all located in an urbanized environment. Typologically, the buildings are in all three selected case studies multi-apartment buildings (Table 1). A more detailed comparison of the location shows that the cases under consideration are located in very different climatic conditions (cold, temperate and Mediterranean climates) and cultural surroundings, which would typically result in different issues with regard to external

influences and user expectations. However, this is not the case which indicates the global influence of an industrial society that, regardless of geographical and cultural conditions in the environment, has established a similar type of housing for urban population. The buildings are dilapidated to a various level but all need major renovation. They were built in periods when the living comfort requirements were simpler than today. The questionnaire results show that the residents mainly expect building renovation in accordance with current criteria and raising the quality of living standard to a much higher level.

Methodologically, the selected case studies have a comparable approach. All of them used questionnaires and building inspections, in one case were employed also interviews with building management and decision makers. In the questionnaires, a slightly different structure of questions was used, which was expected, but many of the results from the surveys, such as the general building data, living comfort surveys, the respondents' approach to renovations and the protection of building heritage, can be compared. Also, environmental conditions and surveys of building tissue and installations can be directly compared.

### Quality of living environment

The questionnaire results show that the selected case studies mostly share similar problems. In particular, thermal discomfort, which very often occurs throughout the year, was found as very challenging, partly due to the inadequate building envelope, partly due to obsolete heating systems. Thermal comfort is one of the basic prerequisites for residential well-being, although, in some previous studies the results show, that quality of thermal environment can be quite low on the preference list (Frontczak and Wargocki, 2011). Some studies also show, that people are able to adapt to ambient temperatures and still feel comfortable (Ioannou et al., 2018), as was also stated in the Svartlamon study (Senior et al., 2021). The results of the selected case studies, however, show that temperature deviations are sometimes very pronounced, so this problem needs to be addressed very carefully. Problems with thermal comfort, in addition to higher operational costs, can also affect the health and well-being of residents, which was pointed out by some respondents (Table 1). Also, Fisk et al. (2007) believe that the visible presence of mold and odor of mold in 30–52% of cases can cause a range of respiratory problems and diseases, and Mudarri and Fisk (2007) hypothesize that 21% of asthma cases in the U.S. may be related to humidity and the presence of mold in buildings. The resulting consequences on the surveyed buildings show that these aspects are very disturbing for the residents as basically in every selected case study were found actions that were taken in this regard. Above all, the residents replaced the windows to achieve better airtightness, glazed balconies, installed blinds and local cooling units, changed radiators and similar.

It is important to note that respondents rate the air quality in apartments very similarly as good, regardless of the fact that a large share of respondents assessed the outdoor air as polluted and the building surveys of the selected case studies often find cases of inadequate ventilation (Table 1). Such a perception does not change much regarding the time of year and should be considered very carefully. In terms of air quality, EU has so far made the most progress in reducing ambient air

pollution. This was greatly aided by regulations dealing with pollution sources and defining quality standards, first adopted in the early 1970s (SCHER, 2007). The EEA (2017) in its report on air quality in the EU, which covers the period between 2000 and 2015, notes that the content of some pollutants in the air has decreased, but the excess emissions of certain pollutants still remain a major challenge. The air quality measurement data for Pristina and Nova Gorica confirm this and show that outdoor air quality is often not good. (Antonič Kogoj, 2021).

Table 1: Overview of the main findings in the selected studies

| | **Trondheim (Svartlamon)** | **Priština** | **Nova Gorica** |
|---|---|---|---|
| **Building typology** | Alternative community built in 1860<br>Apartment blocks<br>Historical and cultural heritage | Neighborhoods built before 1999<br>Apartment blocks | Apartment blocks built in 1950<br>Built heritage |
| **Method** | Questionnaire survey<br>Building audit | Questionnaire survey<br>Building audit | Questionnaire survey<br>Interview with management and decision makers<br>Visual inspection of building |
| **Thermal** | Low temperatures, thermal discomfort tolerated to a certain degree<br>Could cause structural and health problems | Poor thermal comfort, too hot or too cold during winter, too hot during summer | Poor thermal comfort with too cold temperature in winter and overheating in summer |
| **Lighting** | Poor | Daylighting perceived as good<br>Use of efficient light bulbs | Daylighting perceived as good<br>Sunlight exposure perceived as good<br>Outside view perceived as good |
| **Air quality** | Inadequate ventilation<br>High air humidity | Indoor air perceived as good<br>Perceived kitchen and bathroom odors from other apartments<br>Outdoor air perceived as bad | Indoor air perceived as good<br>Outdoor air perceived as bad |
| **Noise** | Intensive noise transmission between apartments<br>Adaptation strategies | Noise transmission between apartments<br>Disturbing outside noise sources | Noise transmission between apartments<br>Noise transmission from staircases<br>Disturbing outside noise sources |
| **Envelope and building systems** | Technically inadequate envelope causing loss of heat, air leakage and moisture accumulation | Inadequate thermal insulation<br>A large share of replaced windows and radiators<br>Obsolete heating system | Inadequate thermal insulation<br>A large share of replaced windows, installed shading, cooling devices and glazed balconies<br>Want elevators |

| | | | |
|---|---|---|---|
| | | Poor heating regulation | |
| **Social aspects** | Social cohesion<br>Democratic decision making<br>Feeling of autonomy<br>Good access to green areas<br>Not planning to move<br>Motivated for self-renovation | Largely owned by residents<br>Not planning to move<br>Motivated for renovation to reduce operational costs<br>Lack of organized initiatives | Largely owned by residents<br>Not planning to move<br>Not motivated for renovation due to lack of control over the process<br>Good access to green areas |
| **Recommendations** | Recommendations for future self-renovation works | Recommended methodology for assessment of renovation measures | Definition of main problems and recommendations for further renovation approaches |

As highlighted in the Svartlamon study, the choice of materials is also important for indoor air quality. As some studies note, the increase in relative humidity, which was highlighted as a problem in the Svartlamon study, has a positive effect on indoor air quality perception and reduces irritation, but it can also increase emissions from materials (Clasuen et al., 2012) and affect sedimentation of dust particles. These can also be up to 10x higher than outdoors (Cheong et al., 2001). Volatile organic compounds can be released from construction products for finishing, new furniture or residues of solvents and cleaners on surfaces. Phthalates in PVC materials can also be released into the environment throughout the product life cycle and have a very long shelf life (Dovjak et al., 2013).

Sound transmission between dwellings in the selected case studies was perceived as a major problem in all surveys and can be described as a general problem. Respondents mainly point out the inappropriate implementation of dividing elements between apartments and in some cases even look for very original solutions to tackle the problem (Senior et al., 2021). External noise transmission was also often highlighted as disruptive, and respondents expressed a desire to upgrade building elements. Excessive noise in the living environment can be a serious problem. Ryu and Jeon (2011) conducted a study of the impact of sensitivity to sound and consequently on the irritability of residents caused by internal housing noise and external traffic noise in the actual and laboratory environment and found significant influences of noise on increased irritability.

Respondents expressed satisfaction with daylighting in southern Europe and dissatisfaction in Norway. This is to some extent expected, as the conditions at the locations in question, especially the length of the day, vary considerably. Example from a study conducted in Denmark shows, that daylighting is very high on the list of environmental preferences right behind “hygge” and function of the room (Frontczak et al., 2012), so the local conditions have to be assessed and appropriate measures have to be taken. The selected case studies show that residents have taken action on artificial lighting by replacing light bulbs in some cases. Satisfaction with the view of the outside and the accessibility to green areas was shown mainly by the respondents who have green areas in the vicinity of their homes.

The causes of the problems presented above can be found especially in in two separate areas. The first is inadequate building tissue with insufficient thermal insulation, dilapidated building elements and unsuitable shading devices The second is obsolete or inadequate heating system, which hampers temperature regulation in apartments. The drawback highlighted in all the studies is that the renovations only take place when the building elements are already severely worn out or when the current conditions can no longer be tolerated. The results of the buildings' surveys show that the problems with living comfort are often very pronounced, as residents take action to the best of their abilities. Since the scope and method of implementation are defined by individual owners, these interventions can be defined as a form of self-decided renovation works. They are usually limited to an individual apartment. Shared building systems and elements thus remain intact and the common problems unaddressed, as interventions are not aligned with other owners - a problem common to all studies. The consequence is also a non-uniform appearance of buildings, which to some extent occurs in all cases. In one case, this issue was raised in a survey and most respondents were not bothered by the altered appearance of the buildings (Antonič Kogoj, 2021).

Recommended actions

Studies in all cases provide recommendations for approaches to renovations, whether instructions for self-renovations or increased sense of community that will result in more informed and harmonized community decision making and capabilities. Interestingly, there is general satisfaction among respondents with the environment in which they live and a very small proportion would like to relocate (Table 1). Since the structure of housing is predominantly owner-occupied, this means that majority of respondents I willing to continue to invest and renovate their property in the future. When comparing the selected case studies, we find different attitude to renovations, which are conditioned by the ownership structure and legislation but also financing capabilities. The Svartlamon study presented a unique self-renovation bottom-up approach that stems from high cohesiveness and community engagement, while the other two studies show mainly individual approaches and would need a nudge or outside initiative (e.g., regulation measure or financial benefits) to join initiatives. In the case of Nova Gorica, it is also clear that the co-ownership structure inhibits major interventions in the building envelope and other common building systems, as such interventions require a high proportion of owners' consents. The predominantly older surveyed population has lower income and fewer prospects for larger investments, which further hampers renovations. The problem of financial barriers has been also highlighted in the Zangheri et al. (2021) report, stating that the vast majority of consumers have encountered financial barriers; for 74% of respondents the energy renovations are too expensive and 78% do not like to take loans or mortgages. An additional issue is the fire and seismic reconstruction of buildings, which need to be linked to energy renovations (EPBD, 2018) and require high financial investment and extensive work. Not many residents are willing to deal with such unpleasant and time-consuming works. To tackle these problems, for future approaches to energy renovation, the potential indicator of Indoor Environmental Quality (IEQ) is proposed, in relation to contextual factors (such as climate, exposure to pollutants) and building data (Zangheri et al., 2021).

Hesitation due to complicated legislation and financial liabilities hinders the implementation of major interventions (Zangheri et al., 2021). As a result, some measures are flying under the radar of relevant governmental bodies (e.g., protection of building heritage) or lag far behind comparable renovations in single-family homes (Hermelink et al., 2019). Lack of joint initiatives and the feeling that little can be achieved ("is decided by others") (Antonič Kogoj, 2021)) further intensifies individual decision-making without coordinating activities. The result are non-uniform individual interventions that negatively affect the appearance and quality of the buildings. In the case of protected buildings, the irreversibility of these interventions is also problematic, as valuable building heritage is lost. For this reason, a holistic approach that includes technical, economic, social and behavioral as well as regulatory and financial aspects in order to ensure effective policies, is needed (Zangheri et al., 2021).

## Conclusions

In this study, a comparison of the selected case studies was carried out with special focus on how external influences and different social and cultural environments influence decisions regarding energy renovations and whether common ground between the selected examples can be defined. The comparison showed that regardless of geographical and other differences, some very similar problems emerged. The vast majority of owners are not ready to move and are ready to invest in the maintenance of the buildings in which they live. Respondents highlighted the problems with thermal comfort and sound protection in apartments and the deterioration of some building elements/systems, which were replaced in accordance with the financial capabilities and knowledge of residents. The main goal of users is to adapt buildings to current needs, but the actions are seldom coordinated with co-owners.

As a significantly higher volume of energy renovations of buildings is expected in the coming years, a more comprehensive approach is needed to harmonize the environmental performance of architecture in relation to today's understanding of the problems of the quality of the internal environment while respecting cultural and historical values. Above all, there has been a need for a more holistic renovation of buildings. Multi-apartment buildings are particularly demanding for renovation due to the complex ownership structure and the social interrelationships. In some cases, interventions are limited due to the protection of cultural heritage and in some cases the regulatory basis is not satisfactory.

Challenges related to lack of social cohesion, motivation, knowledge and communication constitute major barriers to the implementation of viable renovation measures. It is necessary to continue to establish a meaningful regulatory framework and offer acceptable top-to-bottom solutions, but it is also necessary to use softer bottom-up approaches. For more efficient and environmentally friendly practices pre-existing culture and economic factors should be combined with sustainable solutions. In particular, it is necessary to provide sufficient information on feasible solutions, funding possibilities and expected benefits.

## References


Antonič Kogoj, M. (2021). Users and awareness of the architectural heritage of modernism in Nova Gorica. *Master thesis*, New university, European faculty of law.

Bradshaw, J.L., Bou-Zeid, E., Harris, R.H. (2014). Comparing the effectiveness of weatherization treatments for low-income, American, urban housing stocks in different climates. *Energy Build. 69*, pp. 535–543.

Cheong, K. W., Chong, K. Y., (200)1. Development and application of an indoor air quality audit to an air-conditioned building in Singapore. *Building Environ* 36, pp. 181–188.

Clausen, P. A., Liu, Z., Kofoed-Sørensen, V., Little, J., Wolkoff, P., (2012). Influence of temperature on the emission of di-(2-ethylhexyl)phthalate (DEHP) from PVC flooring in the emission cell FLEC. *Environ Sci Technol* 46(2), pp. 909–915.

COM 640 (2019). The European Green Deal, Communication from the commission to the european parliament, the european council, the council, the european economic and social committee and the committee of the regions. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN [19. 7. 2021].

EPBD 884 (2018). Directive of the european parliament and of the council of 30 may 2018 amending directive 2010/31/EU on the energy performance of buildings and directive 2012/27/eu on energy efficiency. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0844&from=IT [19. 7. 2021].

Dovjak, M. et al. (2013). Integral control of health hazards in hospital environment. *Indoor and built environment* 22(5), pp. 776–795.

EEA (2014). *Noise in Europe*. Luxembourg: European Environmental Agency.

EEA (2017). *Air quality Europe*, Report No 13/2017.

Fisk, W. J., Lei-Gomez, Q., Mendell, M. J. (2007). Meta-analyses of the associations of respiratory health effects with dampness and mold in homes, *Indoor Air* 17, pp. 284–296.

Frontczak, M., Vinther Andersen R., Wargocki, P. (2012). Questionnaire survey on factors influencing comfort with indoor environmental quality in Danish housing**,** *Building and Environment* 50, pp. 56-64.

Frontczak, M., Wargocki, P. (2011). Literature survey on how different factors influence human comfort in indoor environments, *Building and environment* 46, pp. 922–937.

Hermelink, A.; Schimschar, S.; Offermann, M.; John, A.; Reiser, M.; Pohl, A.; Grözinger, J. (2019). *Comprehensive Study of Building Energy Renovation Activities and the Uptake of Nearly Zero-Energy Buildings in the EU*; European Commission: Cologne, Germany.

Konjusha Elmi (2021). Sustainable retrofitting measures with emphasis on energy efficiency of the residential sector in Pristina, PhD thesis, New university, European faculty of law.

Kristl, Ž.; Senior, C.; Temeljotov Salaj, A. (2020). Key challenges of climate change adaptation in the building sector. *Urbani Izziv* 31(1), pp. 101-111.

Mudarri, D., Fisk, W. J., (2007). Public health and economic impact of dampness and mold. *Indoor Air* 17, pp. 226–235.

New European Bahaus-Initiative (2021). European Commission. *Why the New European Bauhaus (NEB)? What Are the Next Concrete Steps?* European Commission: Brusels, Belgium.

Ryu, K. J., Jeon, Y. J., (2011). Influence of noise sensitivity on annoyance of indoor and outdoor noises in residential buildings. *Applied Acoustics* 72(6), pp. 336–340.

SCHER, (2007). *Opinion on risk assessment on indoor air quality*. Scientific Committee on Health and Environmental Risks, EC.

Senior, C., Temeljotov-Salaj, A., Vukmirović, M., Kristl, Ž. (2021). The Spirit of Time—The Art of Self-Renovation to Improve Indoor Environment in Cultural Heritage Buildings, *Energies* 14 (13), 4056; https://doi.org/10.3390/en14134056

Ugarte, S.; Van Der Ree, B.; Voogt, M.; Eichhammer, W.; Ordoñez, J.A.; Reute, M.; Schlomann, B.; Llore, P.; Villafáfila, R. (2016). *Policy Department: Economic and Scientific Policy-Energy Efficiency for Low-Income Households*, European Parliament: Brussels, Belgium.

Zangheri et al. (2020). *Building energy renovation for decarbonisation and Covid-19 recovery*. A snapshot at regional level, EUR 30433 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-24766-1, doi:10.2760/08629, JRC122143.

# Nitrogen emissions in the Netherlands in relation to national and European Union law

**Laumé Buitenwerf**

**Loraine Scholten**

**Wabbe de Vries**

Department of Real Estate, Hanze University of Applied Sciences, The Netherelnds
l.l.buitenwerf@st.hanze.nl
l.c.scholten@st.hanze.nl
w.de.vries@pl.hanze.nl

## Abstract

This legal investigation concerns the extent to which the EU has binding effect, e.g. nitrogen emissions by projects adjacent to Natura 2000 sites. Secondary sources were used in the investigation. 1./ With the Nitrogen Approach Program (PAS), the Netherlands implemented measures to reduce nitrogen emissions. In a verdict of 29 May 2019, the Council of State (ABRS) stated that this Program may no longer be used for construction permission, e.g. housing. A stagnation of about 140.000 activities throughout the Netherlands resulted. This caused a major social unrest. Farmers started to protest and governments faced major political issue. 2./ European Union (EU) Law consists of treaty law. In addition, EU law consists of secondary law, Regulations and Directives. Provisions of primary law and regulations are directly applicable. Under certain conditions, citizens and organizations can also rely directly on Directives in law pursuits against governments. 3./ In 2015, the Nitrogen Approach Program took effect. It included flexible opportunities for economic developments adjacent to Natura 2000 areas. In issuing construction permits, Nitrogen compensation measures could be postponed to the future. In accordance with this policy, permits were issued for building large intensive livestock stables adjacent to Natura 2000. 4./ The core objective of the Habitats Directive (1992) is to preserve biodiversity in Europe by special areas of conservation, the “Natura 2000” areas. Member states should ensure the conservation of endangered habitats. In the Netherlands, these obligations have been incorporated into the Nature Conservation Act from 1 January 2017. 5./ In 2018, the European Court announced that the PAS is only compatible with the Habitats Directive under strict conditions. On May 21 2019, the ABRS concluded that the PAS is not compatible with EU law. In issuing permits, compensating measures should be part of the procedure and cannot be postponed or realized elsewhere. The PAS does not meet those conditions and is therefore not in harmony with the Habitats Directive. 6./ The consequences were enormous. The speed limit on highways was reduced to 100 km/h, a large number (more than 100,000) of projects have been cancelled or slowed down. A new policy, November 2019, demands that it must be demonstrated that projects have no negative

consequences for Natura 2000 areas. Permission may only be granted afterwards. Conclusion: EU law is essential in planning and implementing of projects e.g. housing and infrastructure

Keywords: nitrogen emission, legal investigation, Natura 2000.

## Introduction

The main objective of this paper is to explore to what extent European Union law (hereafter EU law) has a binding effect on Member States of the European Union (hereafter EU) in matters of the protection of Natura 2000 areas related to nitrogen emissions, and by that protection of landscapes. This paper will address questions about the status of EU law, the binding effect of directives, and whether civilians and organizations can rely on directives in lawsuits.

Knowledge and understanding of the status of EU law is extremely important for the world of real estate, in particular for property developers. The reason for this is that a large part of the regulation in Member States of the EU is determined by the EU, for example by means of regulations or directives. Knowledge of these EU provisions is therefore indispensable for project developers.

In the context of this contribution, one directive is important, namely the Habitats Directive. The main purpose of this directive is to ensure biodiversity in the EU by determining and establishing protected areas with special habitats or species.
In the densely populated Netherlands, where the pressure on open space is enormous, nitrogen emission is a major threat to the existence of these protected areas. Recently this has led to major social problems and social unrest.

The Dutch situation and the lessons that can be learned from this, might serve as an example for administrative bodies of-, and project developers in other EU Member States.

### Reading guide

The second paragraph briefly explains the status of EU law. Paragraph three then discusses the content of the Habitats directive. The fourth paragraph reflects on the Dutch situation regarding the Dutch nitrogen policy of 2015 and the court ruling in 2019 of the highest Dutch administrative court after a preliminary ruling by the EU court. Paragraph five then shows the impact of this judgment, which resulted in an enormous social unrest and even uprisings. Finally, the most important conclusions will be presented.

## Status of European Union Law

The EU is characterized by its own supranational legal system. The Member States transferred part of their sovereignty to the EU, including the protection of the spatial environment. The character of EU law means that governments of Member States

and their administrative bodies, in exercising their competences, must comply with binding EU provisions.

The competences of the EU are restricted to a certain extent, which is stated in a number of principles in EU Treaty law. The obligations in EU law stem from the law of treaties, but also from secondary law such as directives. The character of EU law prescribes that governments of Member States and their administrative bodies, in exercising their competences, must comply with binding provisions stated in EU treaty law. In two important cases, the Court of Justice of the European Union (hereafter CJEU) stated that EU Treaty law is directly binding and that EU law precludes National law.[29]

In addition, EU secondary law consists of directives.[30] Directives are instruments intended to harmonize national legal systems of Member States based on EU objectives. Directives are submitted by the European Parliament and the Council with the purpose to implement objectives into national law within a certain time period. Directives are addressed to national authorities and are binding in order to be achieved.[31] Therefore, directives are not directly binding to private parties. Under certain conditions, however, private parties can invoke the objectives of directives in lawsuits. These conditions are the following; if the transposition period has expired, if the objectives have not been or have not been properly implemented in National law, if the directive directly provides rights for private parties and the directive is clear and unconditional.[32] In 2010 the CJEU explicitly stated again that directives cannot be invoked between private parties; the so called horizontal effect.[33] Already in 2004, the CJEU decided that private parties may invoke a directive, under conditions as mentioned above, in an indirect vertical way.[34]

**The Habitats Directive**

As mentioned above the previous subsection, habitats are part of a landscape. At the end of the 20th century, the continuing deterioration of natural habitats was of major concern to the European Union. Where the habitats have a particular character, or where they house particular species, they are of great importance for the landscape and must therefore be protected.

In 1992, the European Council established a directive on the protection of natural habitats: directive 92/43/EEC.[35] The purpose of this directive is to conserve natural habitats, including habitats of species, and to protect species. In short, it is about the improvement and conservation of biodiversity and, with that, landscapes in the

[29] EU case law; Costa/ENEL, ECLI-code:C:1964:66. Van Gend & Loos, ECLI-code: ECLI:EU:C:1963:1.
[30] Article 288 Treaty on the Functioning of the European union (TFEU).
[31] Art. 288 of the Treaty on the Functioning of the European Union (TFEU).
[32] EU case law; Francovitch, ECLI-code: ECLI:EU:C:1991:428, and EU case Brasserie du Pêcheur, ECLI:EU:C:46/93 and 48/93.
[33] EU case law; Kücüdecici, ECLI-code: ECLI:EU:C:2010:21.
[34] EU case; Wells, ECLI-code: ECLI:EU:C:2004:12.
[35] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, the Habitats Directive, established on 21 May 1992, published in the OJ 1992 L 206/7, this directive is amended a number of times related to the extension of the EU, the latest amendment was by directive 2013/17/EU of 30 May 3013 published in the OJ 2013 L158/31.

European Union. Member States have the obligation to maintain or restore favorable natural habitats of Community. This must result in a coherent European ecological network of special areas of conservation under the title Natura 2000, where Member States must endeavor the *"(…) features of the landscape which are of major importance for wild fauna and flora (…)"*, although this provision is not sufficiently strict and clear and therefore less easy to enforce. On the other hand, the directive stipulates the surveillance of the conservation status of natural habitats by Member States.

The procedure of designating special protected areas of conservation (hereafter SAC) starts with a list of sites made up by Member States. Based on this list, the European Commission establishes a draft list of sites of Community importance, including sites with a priority habitat. Member States then should designate these areas as Natura 2000 areas, These designated sites are characterized by specific objective characteristics of the protected area.

The consequences of the designation of these SACs is that measures must be taken to avoid the deterioration of these special areas. Therefore, Member States must carry out an appropriate assessment of the implications for the site in view of its conservation objectives, for plans or projects not directly connected with or necessary for the management of that site, but which likely have a significant effect thereon. This procedure can be described as the *'habitat assessment'*. Permissions for plans or projects in special areas is restricted. Only in the absence of alternatives for situations of imperative reasons for overriding public interests, including economic, social or cultural interests, a project or plan might be authorized. However, when the site hosts a priority natural habitat or species, the project or plan may only be granted in the light of human health, public safety, in the benefit of the environment, or with consent of the European Commission. In addition, permission can only be given when compensating measures for occurred loss take place. Although compensation *in situ* is not obligated, the Court of Justice of the European Union (hereafter; CJEU) stipulated that compensation may not be postponed to the future and must be realized in the region of the projector plan. [36]

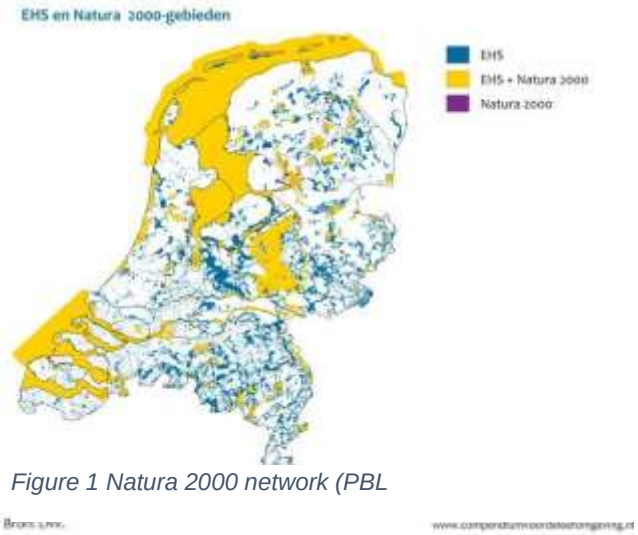


*Figure 1 Natura 2000 network (PBL*

After designating SACs, Member States shall endeavor, where they consider it necessary, to incorporate the coherence of the Natura 2000 network into their land-use planning and development policies, and to encourage the management of the features of landscapes that are of importance for wild flora and fauna. Since these

[36] See also the internet site http://ec.europa.eu/environment/nature/natura2000/management/guidance/en.htm.See also Kole (2011) on an annotation on case BQ 3434 of the ABRS in relation to this aspect, and Backes (2011), p. 363.

provisions are not formulated in a strict way, they are not easy to enforce. In its rulings, the CJEU quite often used the teleological interpretation, which means that the objective of the directive is taken as a starting point.

*CJEU Jurisprudence*

Over the years, the court has ruled on a huge number of cases related to habitats. In quite a number of cases, the CJEU based its decisions on a teleological interpretation of the habitats directive. For a small anthology we refer to Appendix 1.

CJEU jurisprudence shows an extended teleological interpretation resulting in an extension of the protective regime of the habitats directive to territories of potential Community importance. The CJEU concluded that in designating or modifying special areas of Community importance, economic and social aspects may not be used, and that EU secondary law concerning natural habitats also applies to the landscape. In addition, the CJEU argued that in SACs that host a priority habitat type, social or economic reasons may not be used in designating or modifying Natura 2000 areas. In addition, the CJEU argued that where no certainty exists whether the project or plan might not lead to deterioration and disturbances, appropriate measures must be taken, and where the uncertainty remains, a project may not be granted. In situations of sites of Community importance, Member States must take protective measures that are appropriate, from the point of view of the directive's conservation objective. Concerning compensatory measures, the CJEU argued that despite the proposal of corrective and compensatory measures, these measures should actually be carried out.

**Dutch nitrogen policy and revision**

In 2015, the Dutch government introduced the Dutch nitrogen policy. This policy was introduced because there was too much nitrogen emission, which has harming effects on plants, animals and the ground itself, especially in Natura 2000 areas. The main goal of this policy was to not only reduce the amount of nitrogen in nature, but also to strengthen nature and at the same time enable economic development.[37] There were two ways in which this was made possible. First, by providing nature restoration measures in Natura 2000 areas where the amount of nitrogen was already too high. Second, by providing measures to reduce the amount of nitrogen that actually ends up in these Natura 2000 areas.

However, this Dutch policy made it possible to carry out new projects that still caused a great amount of nitrogen emission such as large infrastructural projects and the realization of large livestock farms. The Nature conservation law states that a permit is required for activities that can lead to damage to Natura 2000 areas. With the new nitrogen policy, it was possible to obtain a permit without already performing compensation measures. The permit would be approved, and the measure could be applied afterwards.

[37] https://web.archive.org/web/20190926081350/https://www.rijksoverheid.nl/onderwerpen/aanpak-stikstof/programma-aanpak-stikstof-achtergrond-en-inhoud

It was possible to obtain a permit for the realization of large infrastructural projects or intensive livestock farm projects adjacent to a Natura 2000 area, without having to carry out compensatory measures already. In this way, the economy would not stagnate due to the new nitrogen requirements and in the meantime, work would be done on reducing the amount of nitrogen. Because of this new policy, in 2015 and in the following years, quite a few permits were granted for large livestock farms and other projects.

*Revision in 2019*

In May 2018, the Dutch supreme administrative court (Afdeling bestuursrechtspraak van de Raad van State, hereafter ABRS) has submitted preliminary questions to the CJEU about whether their nitrogen policy complies with the habitats directive. Later that year, the CJEU stated that the policy only complies with the habitats directive under strict conditions. The Dutch nitrogen policy has a general assessment framework, while the Habitats Directive requires Member States to individually assess each project that will have a significant environmental impact. [38]

On May 29 2019, the ABRS concluded that the nitrogen policy was not compatible with EU law and therefore, could not be used anymore. [39] This Dutch nitrogen policy is in contradiction with the habitats directive because permits are granted for projects that might affect Natura 2000 areas beforehand while compensating measures are postponed. The Dutch court argued that the positive impact of compensating measures must be determined in advance and only then a permit can be granted.

The conclusion of the ABRS has no consequences for permits that were already final. Permits that have not yet been granted, can be processed again after this ruling. As can be expected, this ruling has major consequences for pending permit applications related to infrastructural and construction projects and livestock farming.

**Paragraph 5. The impact of the judgment**

The consequences of the Nitrogen Approach Program were enormous, and the impact of the judgment resulted in an enormous social unrest and even uprisings. The Netherlands has taken several measures to reduce the nitrogen emissions. For example, the speed limit on highways was reduced from 130 km/h to 100 km/h. There was a lot of fuss about this amongst Dutch citizens. People thought it was unnecessary and they were afraid that they would have a much longer travel time by car as a result. This also meant that the government had to change thousands of speed signs, which resulted in enormous expenditure. The National Institute for Public Health and the Environment (RIVM) calculated that this measure would provide enough nitrogen space to pull housing and infrastructure projects out of the doldrums and to reduce nitrogen emissions into the landscape and in particular into Nature 2000 areas. However, in the long term, even more measures are needed to

[38] https://europadecentraal.nl/europees-hof-van-justitie-pas-alleen-onder-strenge-voorwaarden-verenigbaar-met-de-habitatrichtlijn/
[39] https://www.raadvanstate.nl/@115651/pas-mag/

stop the nitrogen crisis. This major problem still exists and is a difficult issue for political parties. If the nitrogen problem is not solved, the reduction of CO2 emissions and even the energy transition might be endangered.

A Dutch online news platform (NOS) recently published an article about nitrogen rules preventing sustainability in the Netherlands. These two topics come together since, due to the nitrogen regulations, investments even for innovative and clean industry projects are postponed, meaning a standstill and even a drawback of innovative industrial projects. At the moment this can be seen in the industrial area 'Eemsmond' in the Northeast of The Netherlands, where the construction of a new chemical company that emits less CO2, and a company that converts wind energy into hydrogen, is not possible due to strict regulations. In due time, this will result in loss of innovative industries and employment.[40]

Another consequence is that more than 100,000 projects have been cancelled or slowed down. This stems from the new policy, November 2019, that demands that it must be demonstrated that projects have no negative consequences for Natura 2000 areas (see 4.). Permission may only be granted afterwards. Because the issuance of permits is locked and therefore the thousands of projects and activities have come to a halt, there was a lot of unrest in the country. Farmers started to protest (see figure 2), there was social unrest and politics were faced with a major issue of how to solve this problem.

*Figure 2 Social unrest, farmers on their way to a demonstration (indebuurt, 2021)*

## Conclusion

It should be clear that pressure on landscapes in The Netherlands is enormous due to nitrogen emissions, and that Dutch administrative bodies and Dutch society face a huge task. However, it should also be clear that this Dutch example is not isolated. The lessons that can be learned from this it apply to the entire EU and therefore to all EU Member States. In relation to real estate, it can be concluded that EU law is leading in all Member States and that the CJEU has sent a clear signal about the protection of Natura 2000 sites.

## References


Eurlex, Portal of the European Union: https://eur-lex.europa.eu/homepage.html?locale=nl

Hönig Dietmar: *Bund Naturschutz, Schutzstatus nicht gelisteter in FFH-Gebiete*, (2007), 4 Natur und Recht 251


[40] NOS Nieuws, 4 juni 2021

Hofhuis, Y.: *Zaak C-244/05, Bund Naturschutz in Bayern Verein*, (2008) 1 Tijdschrift voor

Europees en economisch recht pp. 28-30

Kole, S.D.P.: *Passende beoordeling vergunning Natuurbeschermingswet 1988, onvoldoende gemotiveerd.*, (2008) 7299 Gemeentestem

Kole, S.D.P.: *Een vaste getalsmatige grens zonder nadere onderbouwing volstaat niet voor het vaststellen van significante effecten op instandhoudingsdoelstellingen van kwalificerende habitats en soorten,* (2011) 7355 Gemeentestem

Kole, S.D.P.: *Weigering Nbw 1998-vergunnng, Wijze waarop een passende beoordeling wordt uitgevoerd. Significante effecten.*, (2012) 3 AB Rechtspraak Bestuursrecht

Louis, Hans Walter and Schumacher, Jochen: *Das Dragaggi-Urteil des EuGH in der Interpretation der Kommission als Hüterin der Europäischen Verträge*, (2005) 12 Natur und Recht pp. 770-771

Meßerschmidt, Klaus: *Europäisches Umweltrecht*, (2010) Beck Verlag München

Rijswick van, H.M.F.W. and Widdershoven, R.J.G.M.: *Rechtstreekse werking van richtlijnen in driehoeksverhoudingen,* (2004) 3 Nederlands Tijdschrift voor Europees Recht pp. 42-27

Stuër Bernard: *Anmerkungen zu EuGH, Urteil vom 14.1.2010 - C-226/08 – Bestandskraft von Zulassungsentscheidungen wird durch FFH-Regime unterbrochen*, (2010) 4, Deutsches

Verwaltungsblatt pp. 246 and 242

Sueli Giorgetta: *The Right to Healthy Environment*, in Schrijver, Nico and Weiss, Friedl, International law and Sustainable Development, (2004) Martinus Nijhoff Publishers Leiden

Venegoor, M.: *Europees hof van Justitie: PAS alleen onder strenge voorwaarden verenigbaar met de Habitatrichtlijn* (12 november 2018)

Woldendorp : *Annotatie Spanje/Commissie,* (2012) 2/24 Tijdschrift voor Bestuursrecht

Zeben van, Josephine and Rowell, Arden: *A guide to EU environmental law*, (2020) University of California Press

**Internet sites:**

Indebuurt: https://indebuurt.nl/hoekschewaard/nieuws/woensdag-de-a29-op-dit-merk-je-van-het-boerenprotest-vanuit-de-hoeksche-waard~66045/ Consulted on July 4 2021.

NOS nieuws: June 4, 2021, https://nos.nl/artikel/2383625-probleem-op-formatietafel-stikstofregels-houden-vergroening-tegen, Consulted on June 4 2021

Omgevingswet.net: https://www.omgevingswet.net/item/4355-pas-mag-niet-als-toe-stem-mings-ba-sis-voor-ac-ti-vi-tei-ten-wor-den-ge-bruikt, Consulted on July 2

Programma Aanpak Stikstof 2015: https://web.archive.org/web/20190926081350/https:/www.rijksoverheid.nl/onderwerpen/aanpak-stikstof/programma-aanpak-stikstof-achtergrond-en-inhoud, Consulted on July 4 2021

Raad van State: *PAS Decision ABRS*, Raad van State: ECLI:NL:RVS:2019:1603, https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RVS:2019:1603

Appendix 1: A short overview of interesting CJEU decisions.

| | | | | |
|---|---|---|---|---|
| Designation of SACs and the discretionary margin of Member States | | | | |
| WWF case C-371/98 | 2000 | ECR I-9235, | Pars, 22 and 25 | No economic, social or cultural aspects |
| Bund Naturschutz case C-24/05 | 2006 | ECR I-8445, | Par 41 | No economic, social or cultural aspects |
| Commission/Ireland Case C-418/04 | 2007 | ECR I-10947. | | Also very small territories |
| Obligation to take appropriate measures | | | | |
| Commission/Spain Case C-404/09 | 2011 | ECR I-11853 | | By no certainty the obligation of appropriate measures |
| Waddenzee Case C-127/02 | 2004 | ECR I-4705 | Pars. 45 and 61, and 54 and 59 | See Commission/Spain |
| Stadt Papenburg Case C-226/08 | 2010 | ECR I-131 | Pars. 1 and 2 and summary | Changing territories, priority types no social or economic reasons |
| Appropriate conservation measures | | | | |
| Draggagi Case C-117/03, | 2005 | ECR I-167 | par. 22 | Teleological interpre-tation and conservation goals |
| Bund Naturschutz Case C-244/05, | 2006 | ECR I-8445 | par. 47 | See Draggagi |
| Compensatory measures | | | | |
| Garrigues Canal Lleida Case C-186/06 | 2007 | ECR I-12093 | Par. 33 | Compensatory measures should actually be carried out |

# Property development viability and community spirit – rethinking the safety angle

**Tom Kauko**

Budapest, Hungary
tomjkauko@gmail.com

## Abstract

What we in generic academic parlance refer to as “social factors” tend to have various major consequences for the built environment. For an individual property unit or site, its value development together with potential changes in the surroundings comprise such concerns, as do white flight at the level of neighborhood. This contribution addresses the symbiotic issue of property development viability and community spirit – including downsides, such as violent crime. How does property development viability depend on the community situation in terms of trust and social hazard? The problem is how to attract or retain property owners, private sector employers and employees, preferably within the service sector, and customers for such service companies as well as other community members who would play by the rules of organized society. The livability and functionality of the built structures together with their on- and off-site circumstances depend, to a great extent, on the way the social environment relates to safety of these property owners, companies, their workforce, and spending customers. And this, in turn, has further implications for property development viability and community spirit, and, eventually, the real estate economy at large. The findings of this conceptual analysis pertain to the ability of real estate actors to make the most of these increasingly controversial relationships.

Keywords: community spirit, property development viability, real estate investment, safety.

## Introduction

Long before any sustainability science agenda, various theoretical and empirical literatures within economics, psychology, sociology, geography and planning have identified the importance of social factors in residential location choice. One could even argue that understanding the social aspects is a key issue for a successful analysis of how people move within an urban area (see e.g. Manzi et al. 2010, Ahmed 2011). Such thoughts also resonate with the corresponding original humanistic argument on emotional values, following Tuan (1974), that resident’s choice of home environment depends on the relative evaluations of contradictory criteria: on one hand, people want safety, familiarity and avoidance of nuisance; on

the other, they want grandeur, excitement and stimuli at the same time (see also Kauko 2004).[41]

Here several obvious questions arise. Do such desired residential environments exist, or could these be produced? And do similar perceptions exist for workplace environments – are they too caught in the same choice dilemma? Furthermore, how would occupants of such ideal real estate feel, if their preferences become different than those of the developers? These speculations shift our analytical foci from the demand side towards the supply side. The issue then concerns property development and the production of apt vicinities, including the need to maintain vital communities in support of a continuing narrative of what is portrayed as "likable" in a place. Safe to say, in this context, that property development is not always portrayed as a technical exercise, in so far as social and cultural factors of the locality might have a surprisingly decisive influence on the decisions being made (see Guy et al. 2002).

Nevertheless, when examining the economic realities of a given project, financial stakeholders have a key role for the production of what is referred to as "sustainable built environment" (Lützkendorf et al. 2011). Indeed, it is the property developer and investor who are expected to come up with a lion's share of the financing of the sustainability elements. It is therefore essential that also these actors are represented in the participatory planning and development procedures. The extent to which the desired sustainability features can be approached as viable also depends on the economic cycles: at the time of financial downturn, original concepts based on large-scale developments may well have to be downshifted, and reworked as small-scale and refurbishment agendas. In such a situation, the local public economy furthermore needs a long-term "smartish" and spatially differentiated strategy, preferably with standards and protocols, to ensure an apt outcome in terms of livability as well as feasibility considerations.

So what then determines the approval of a given neighborhood? The affordability of the area or region is obviously a crucial factor – rents and prices of homes as well as nearby services may matter more than anything else for the prospective in-mover. Other absolute issues for average residents to tackle are of many kinds, and the space here is not sufficient to delve into all of them. Here one particularly important social factor is picked for scrutiny: the safety against physical violence and robbery; this can be approximated to whether one can easily avoid potential low-intensity danger. (In particular, in confrontations with street-gangs constituted of feral young men.) The problem might, for instance, be that, whilst I would accept living in a neighborhood dominated by ethnic group X, the members of that group might not accept my presence there (Kauko 2019a). In this arguably neglected problem area, the question is about the ability of the residents themselves, on one hand, and the public sector, on the other, to guard against these problems so that the area does not degenerate further into chaos and vulnerability. In this essay the

[41] One notices furthermore that, amidst the ongoing *discursive turn* in social sciences, this kind of seemingly schizophrenic rationalization of one's motivations can be fitted within a broader methodological view, following the philosophy of science of *relativism*, according to which the 'truth' does not exist in objective terms and is depending on particular narratives.

focus is firmly on the former of the two aspects: the rationale for individual choice. (The other aspect involves public choice and would require more elaboration in a follow-up study.)

This paper discusses the individual choice setting of the perceptions of a safe place. Reviewing the relevant features for these choices should also be seen as a first step towards developing a quantifiable research platform for the analysis of place safety. This kind of "place safety index" could also be seen as a potential innovation in terms of the set of elements included, in so far as these can be plugged into a property development viability approach. This index would be based on perceived threats to one's safety and thereby opposite to the already established "tolerance" indices. So an alternative measure to examine – and perhaps rank – place attractiveness for the prospective occupant, investor and developer as well as other stakeholders involved. Unfortunately, the problem here is that, while the safety angle is justifiable in both economic and social terms, it is also likely to offend some circles.

The research question is formulated as follows: How does property development viability depend on the community situation in terms of trust and social hazard? The problem is how to attract or retain property owners, private sector employers and employees, preferably within the service sector, and customers for such service companies as well as other community members who would play by the rules of organized society. The originality of this contribution is to adapt a *realist* approach[42] to socioeconomically sustainable development concerning real estate stakeholders (developers, investors, owners and occupiers).

While universal by nature, this selection is made particular with a diagnose of recent socially hazardous, mostly urban events in mind. In the wake of violent riots and demands for police defunding, *who* will protect the law-abiding middle-class peoples? We are also living in the midst of a culture of blame, where everyone seems to be entitled to mudslinging and hypocrisy. The bottom-line is: the majority of us would like to generate trust in our communities, and to achieve that goal, also retain a strong law enforcement machinery (Kauko 2019a, 2020a,b).[43] Blunt as this sentiment may be, does it not make sense at a general level? Can we really judge this "silent majority" view from the narrow angle of what we, as supposedly "modern" persons, are being conditioned to believe? (Think of Tuan's wisdom above – primitive urges matter too.) Obviously, polite liberal viewpoints may, shockingly, vanish as quickly as they emerge; for example, according to a recent questionnaire survey, the majority of the population in the UK would have the death penalty reinstated (*Redfield & Wilton Strategies*, 2020).

At this stage a few words need to be said about methodology. As such, a discursive or multi-method approach does not need to subscribe to any fashionable political left-of-center logic at all. (This historically proven revelation may still be news to some younger scholars!) In response to the pupils of the Frankfurt School, who, in

[42] As in critical realism, social realism, race realism and so forth.

[43] For anyone with very different opinion, I would suggest to self-critically analyze their own selections in terms of where they live, what kinds of neighbors they associate with, the schools they put their children in, and the areas they avoid walking through after dark, before accusing me of biased viewpoint (or worse).

the name of “post-positivism” or related ideological acrobatics, might think they own all such positions by default (or simply because they do not care about statistics), we then need to shift into different, *pragmatic* – as opposed to *purist* – categories within the decision space of philosophies of science. Here it is to note that an essentially European critical theoretical tradition[44] existed long before the post-war cultural Marxism promoted by the Frankfurt School. This would enable applying the same methodologies the progressive liberal minded scholars apply, be it with *realist* (as here) or *relativist* (i.e. social constructivist, post-structuralist or post-modernist) orientation. So, stated differently, those who claim to do critical social research cannot easily refute such research as “pseudo-science” anymore, if the methodological apparatus is largely the same – although now used in diametrically opposite fashion.

This paper is organized as follows. After this introduction, the second section outlines the proposed *Islands of Property Management* approach. In the third section, the social side is reassessed. The fourth section deals with real estate analytics concerning crime and safety. The fifth and last section concludes the study.

## The islands of property management approach

Whereas urban planners tend to try to increase suburban densities, at the same time, developers can challenge planning principles related to urban form and function (Grant 2009). This results in friction between the two levels of analysis: one, individual buildings and property rights; and two, neighborhood and urban levels. The former analysis is simpler and familiar to real estate economists and probably to real estate appraisers too. The latter analysis is more complex and should be familiar for social scientists, geographers and, indeed, present day spatial planners. This is why a potential innovation referred to as the *Islands of Property Management approach* is proposed as a way to overcome – or at least substantially reduce – this friction (see Kauko 2019b). We can furthermore assume that analytical tools – and what is commonly referred to as Big Data – will help here.

The idea here is to look for common denominators – we are after all dealing with same ingredients, even if we use them in different order. Namely, variables relating to property price, area density and quality attributes of neighborhood revitalization have an effect on one another (e.g. Dunse et al. 2013). Management of individual buildings will inevitably result in the way the surrounding area is kept. On the other hand, neighborhood revitalization is likely to influence the price level of the property (total, per sqm. floor space, per sqm. land), either negatively or positively. If the intensified management of individual buildings leads to their improvement in quality, then the outcome also represents a gradual upsurge in the standing of the neighborhood – in environmental, social and economic terms. Here is also link to the more general spatial analysis literature as such “islands” of individual well-managed buildings can then act as “cells of development”. This is based on an

[44] This is about Traditionalism (note the capital ‘T’), as conceived by Julius Evola and René Guénon, and later followed by Oswald Spengler as well as many contemporary heavy weight thinkers such as Paul Gottfried.

original idea by Wallner and colleagues (1996), but as modified to a smaller scale analysis.[45]

When the issue of improvement of an area is reduced to purely economic terms (i.e. the traditional mode of urban land and real estate economic analysis), the issue is about how a change in permitted area density (zoning) influences property prices (Dunse et al. 2013). The starting point is that a corresponding demand is required to induce that price increase. Then we experience an immediate effect: more floor-space (or higher plot-efficiency ratio) increases the total price increase, unless this is something akin to a trophy property with antiquarian value. Furthermore, this effect also increases the unit price for land. However, the same effect, when realized, due to decreasing marginal benefit, reduces the unit price for floor-space. These effects notwithstanding, improved on-site and off-site amenities as well as an upgrading the building quality (e.g. insulation) push all price measures upwards, as demand for the built-up property packages increases. The challenge however is to show all this empirically – and when possible, expand the analysis towards the important noneconomic dimensions.

From these more technical considerations, a number of questions arise. What would be the volume and number of property developments – both new and regeneration – as well (green spaces) as infrastructure concerns? What kind of buildings (both office and apartments) would be feasible? How would the necessary traffic arrangements be solved? Where and how to provide sufficiently green spaces and public footpaths and communal areas? When attempting to answer these questions, we should develop well-founded arguments about economic, social, cultural and environmental long-term implications for the affected area and its current and future property stock. The successes then depend on how well the local conditions are understood by the analyst. Neighborhood revitalization is therefore ideally examined from the vantage point of individual real estate management plans and best practices.

As already suggested, this is a bottom-up approach based on improvement of individual buildings and sites, as opposed to a top-down approach typical for using the town-plan as a starting point (cf. Kauko 2015). The idea here is that by improving individual units of real estate, also the whole area will be improved as a consequence, although this will take time and proceed piece-by-piece. As units of real estate comprise both building and site, and as value is also derived from its immediate surroundings, this involves a three step thought procedure as follows:

1. How could the *building* be improved best, so as to facilitate an optimal functional aptness and maximization (or merely protection) of value? This might mean change in use and designing new features, or it might mean protection of existing use and features. And what about the security and safety aspect? Recently fear of crimes has grown and one main reason has to do with uncontrolled immigration, ghettoization and terrorism threats (Kauko 2018).

[45] In the original idea of Wallner and colleagues (1996) the scale was however different: it was suited for using small areas as “cells of development” to revitalize a whole urban area/region (see also Kauko 2015).

2. As *on-site* amenities are vital for the quality and value of any unit of real estate, how could the site (i.e. front garden and backyard for built property) be improved best, so as to enable swift logistics and also provide a pleasant recreational space for its occupants and users (without forgetting the above mentioned safety/security aspect)?

3. As also *off-site* location matters significantly for the ease of use and creation of value, how could the vicinity be improved as well? How this takes place is depending on the specific micro-location, but here two main features can be singled out: amount of green space surrounding the site and the traffic arrangements leading to the site. Are there any kind of nuisance factors (i.e. negative externalities, as will be discussed further below)? If yes, can these be abated? And above all: how to coordinate the suggested improvements with neighboring property owners?

These three levels of analysis define the limits of a real estate oriented approach, where urban planning and policy processes constitute necessary constraints as well as opportunities. These processes, in turn, relate to a number of environmental, social, cultural, behavioral, economic, legal and administrative goals, at least partly uniting them. While this conceptualization takes its starting point in the individual property owner's choice, also neighborhood revitalization and urban regeneration initiatives, including decorations, planting trees and vegetation, partially pedestrian streets and similar small-scale measures, play an inevitable role in shaping the built environment at the micro-level. Many of these issues concern the balance of seemingly opposite ideals on how urban planning is meant for the common good; it can be about development or protection of something, and about tangible or intangible factors. In other words: we have to evaluate different arguments when looking at current and anticipated state of affairs. The following check list of sustainability criteria is suitable for our purposes:

- Environmental-ecologic[46]: modern or eco-certified buildings, durable construction materials, reuse of old building materials, brownfield site, recycling of waste, accessibility by bicycle and public transport, amount of green areas, car parks, clean premises and air, safety against threat from environmental hazards, walkability (on-site), and similar criteria.

- Economic-financial: Stable value uplift due to high quality, diverse or mixed character of functions, favoring local producers or artisans, use of *economies of scale* to promote affordable prices, *hi-tech* and ICT based convenience, transparency of the land and property development process, financial self-sufficiency, negotiation of lease terms (e.g. for sublets), and similar criteria.

- Cultural: Preservation and awareness of the local heritage and history, strong *sense of place,* aesthetic design or natural elements, fit with surroundings and the rest of the area in terms of style, supporting local artists and traditions, and similar criteria.

- Social: Social cohesion and inclusiveness (fit or isolation in demographic terms), asocial behavior, children's playgrounds, leisure and recreational

[46] Whilst acknowledging that these two dimensions are essentially different, they tend to be "lumped together" in much of built environment studies.

opportunities, safety against crime and assault, security and surveillance measures, accessibility of transport links, and similar criteria.

From this list the social factors are singled out for particular focus in what follows. Within this group of attributes collected for empirical research purposes, the relatively straightforward local safety and security issues are often separated from the more nuanced understandings of "a sense of belonging to a place associated with the identity of the place" due to ostensibly different theoretical underpinnings (e.g. Del Giudice et al. 2019). However, as it stands, the amount of discussions surrounding this aspect is often contradictory and confused. Many viewpoints become quickly politicized, be it about followers of a mainstream liberal narrative of "business as usual" or a radical leftist vision of utopia. Against this backdrop, a valid analysis of what necessary needs to be done in a given location is elusive, albeit necessary.

**The social side reassessed**

Apparently, the recent omnipresent push for increased "diversity and equality management" in both corporations and government has not yet been subject to rigorous scrutiny within academia.[47] At any rate, diversity is a complex feature, in relation to individuals and neighborhoods (Skovgaard Nielsen and Hedegaard Winther 2020). As we have seen in 2020 across American – and to a lesser extent Western European – cities, the manifestations of accelerated "diversity developments" are seen in massive conflicts and urban pathologies involving rioting, violence and looting. While some diversity and equality surely is beneficial, insofar as it enhances the adaptability of the business, it may be that investments in diversity promoting activities are taken from more productive investment areas. So, if that is the case, how to make sure that such actions do not hamper technological development? After all, some 50 years ago, NASA managed to get a man on the moon without diversity or equality policies. We have to accept that innovativeness cannot be forced by political actions. The cart should not be put before the horse here.

This example illustrates the latent perceptions of any kind of job environment. The real estate industry is no exception here; business functions rooted in tacit knowledge – as opposed to codified knowledge – inevitably need to be taken into consideration too, if corporate goals are to be met. So we need to find out what various core actors such as stakeholders and network strategists write, say and think about given issues, and how this can be framed in a favorable way. This exactly is the essence of social innovation also within the property development context.

As already stated, the broader methodological proposition here is structured around an alternative approach to real estate analysis. This approach is furthermore aimed at deconstructing the current hegemony of multiculturalism and racial

[47] Unfortunately, the fact is that we cannot find any egalitarian societies in the history of mankind, be it capitalist, socialist or ancient kinds. It is about sheer utopian egalitarian ideology, as part of the cultural subversion experienced in the last three or four decades in the West. (Social engineering of divisiveness, in the spirit of Marxism, of course.)

egalitarianism.[48] This need arises from the apparent failures of this hegemony to recognize the relevant causalities and factual juxtapositions. When pursuing this research strategy, a realist position is argued for, rather than an increasingly fashionable relativist one. This is motivated by the growing safety concerns in urban areas in both Europe and North America, under the threat of unhinged mass-immigration from developing countries. While lots of demographic, social and political processes – notably support for people-smugglers and leniency against perpetrators of violent crimes – are working against this concern, it is never too late to raise one's voice. Some urban scholars already foresee this change in attitudes of urban managers, who, in the wake of the "European immigrant crisis" 2015, increasingly have begun to contest and even reject multicultural promotion policies (Cianetti 2020)[49].

In general, the balance between surveillance technology and reasonable trust in government amid crisis situations much decides the way loyalties consolidate within diverse communities (cf. Harari 2020; Kotkin 2020). The real estate industry is by no means immune from these influences. Developers and appraisers need to tackle issues of social and behavioral character, in fact, by definition, as the valuation and development decisions are made by various groups of managers and experts. Several specific considerations must then be addressed, one of which refers to the safety of a given site or building. Of course, social innovations and digitalization are both needed to deal with security concerns. And in doing so, implications for both human and property rights emerge – with the former more abstract than the latter.

It is important to realize that even in the case of the social side of urban property development viability, any improvements do not happen quickly. The theoretical approach taken assumes that the spaces between individual sites or buildings would be transformed, on the basis of the people moving around there. And this, in turn, would be determined by the nature of the transactions taking place in the said sites or buildings. To a certain extent, this is of course optimistic thinking, in so far as the assumption is about a shared will to keep an area well maintained. Unfortunately, the scenario is likely to turn negative, if such an assumption does not hold. This delicate balance of issues is examined next.

## Real estate analytics concerning crime and safety

### Fear of safety

In general, social nuisance (negative externality), crime and immigrant ghettoes tend to have a negative impact on the way an urban area is evaluated by prospective in-movers, investors and tourists. The discourse surrounding these issues concerns the perceptions of safety of cities and allows combining the real estate relevant analytics with views of the people affected. The issue of safety and security of our home environments is indeed vital, regardless of the stand taken by the analyst.

[48] Curiously, a recent study shows that leftist politics is positively correlated with mental illnesses (Kirkegaard 2020).

[49] As Cianetti (2020, 2709) puts it: '… from a supposed "multicultural consensus" to a refocusing on "community cohesion" and "diversity advantage" …'

For example, considering some of the multicultural development in Western Europe, I feel rather safe in my country of residence, Hungary, which is a country where rather strict anti-immigrant rhetoric and policies are used (in particular, since the "immigrant crisis" begun in 2015). Part of the reason is, in fact, exactly about the need to protect the original citizens in the country. Besides the increased attractiveness of such an environment, the restrictive immigrant policies also tend to come with the added benefit of saving tax-payer's money from having to fund policies of preempting terrorism and combatting other violent threats.

Unless "actual thinking" is replaced by ideology, a safe living environment from which potential troublemakers are excluded would be a commonsense goal for most people. Is it not true that, despite the recent multiculturalist dogma, the ethnically homogeneous societies provide the safest environments for their residents? To guard such an environment, some degree of authoritarian state is required, which obviously then is bound to generate confrontations with those who have opposite opinions.[50] So the dividing issue is about which goal has stronger weight: the safety of the original residents or multicultural tolerance of prospective residents. The logical goal versus its utopian counterpart.

The current realist-pragmatist oriented theory on this issue is already sufficiently abundant to make claims on academic fora. Authoritarian regimes are typically also more ethnically homogeneous than their diverse libertarian – or just liberal – counterparts (cf. Putnam 2007; Dinesen et al. 2019; Kauko 2019a, 2020a,b). In the sense of Putnam's concept of trust, the more authoritarian, homogeneous environment has a greater degree of trust between its residents. And this implies a greater feeling of safety and security against theft and violence, too. The literature also suggests that a lesser racial or ethnic diversity tends to indicate locational desirability, and that the improved crime and community conditions that follow from this will further lead to increased residential satisfaction (e.g. Chapman and Lombard 2006).

In this vein, many predict that, in the foreseeable future of American social life and politics, race is going to be the main dividing issue (cf. Abrajano and Hajnal 2015; Jardina 2019). And indeed, distinctive "races" – including a self-conscious "white race" – whether offensive or not.When original residents move away of an area in fear of their safety (and property values), the phenomenon is known as *white flight*.[51] Tipping points for white flight from an area are said to occur when 20% of an area becomes populated by ethnic groups – this is known as the *Schelling hypothesis* (e.g. Fossett and Waren 2005). In USA this has been evident since the Civic Rights movement in 1960s, when blacks begun to move into hitherto white neighborhoods, thereby causing an unfavorable change in image, if not actual decline of the area, thereby scaring off some of the original residents.

[50] This characterization pertains to most of present day social science and humanities oriented academia, as MacDonald (2010) and Fosse and Gross (2012) testify.

[51] Wessel and Nordvik (2019) use the concept of "native out-mobility" as a broader category than "white flight" which they consider associated with cities the USA.

In general, neighborhood factors influence the decision-making process of households in relation to the balance of “push” and “pull” factors. For example, housing choice voucher recipients (i.e. a federal low-income household mobility strategy in the USA) express concerns about the stress neighborhood violence places on them, and how neighborhood factors constrain their housing choice (Graves 2019). This phenomenon does not only cause a reduction of property value, but also a corresponding decrease in residential satisfaction with living in that place (cf. Chapman and Lombard 2006). In spatially oriented microeconomics, such issues can be put under the umbrella concept of “negative social externalities” contributed to poorly compatible adjacent or nearby land-uses.

### Negative social externalities in urban areas

Urban economic theory has put a heavy significance on negative social externalities as a price influencing attribute since this research tradition begun in the 1970s. In principle, property valuation does involve identification and – whenever possible – quantification of social nuisance factors defined as nearby locations and aspects in the neighborhood that residents deem undesirable. The most usual approximations of negative social externalities in studies with economic and geographic foci cover social housing projects nearby (Laakso 1997), other perceived nuisance caused by antisocial behavior nearby (Kauko 2010; Kauko and d’Amato 2012) and share (in per cents) of ethnic and racial groups in an area (Smets and Kreuk 2008; Permentier et al. 2008; Wessel et al. 2017). In practice, these concerns are often related; for example, a local government might opt for a theoretically justified and ostensibly well-meaning socio-spatial mixing of different forms of housing, but end up with exodus of the original residents, combined with an erosion of value suffered by the adjacent property owners.[52] So this effect is broad and closely related to white flight.

Unfortunately, the kind of data required for such analysis is still not sufficiently openly accessible, even in the most advanced circumstances (e.g. Rokem and Vaughan 2019). Besides such more technical issues, the nature of these influences is still controversial, as many analysts argue that it is the general concentrated disadvantage that matters, rather than any kind of particular neighborhood factor (Lens 2013). Nevertheless, local experts tend to be familiar with the presence of such harms, one way or another, and also a prior study by this author showed that social factors at the neighborhood level, including negative externalities such as robbery and assault, were important for prospective residents in given market segments – this being in the Netherlands and Finland (Kauko 2006,a,b).

In this vein, we can make an empirical observation in relation to the prices of homes in disadvantaged neighborhoods populated with multicultural immigrants. Namely, some areas will have zero value, due to the fact that no prospective home buyer – or even renter – wants to live there anymore. Obviously, with luck, the owners can sell such flats as asylum centers, which is fair enough, but what is the new property

[52] As such, this is the development in the City of Helsinki, Finland, since 1990s. More recently, the effect is exacerbated due to the strong advocacy of refugees and immigrants of African and Asian origin, and their relatively high share within the city’s social housing sector. The relatively unconstrained spatial allocation of social housing is assisted by the high share of municipal landownership.

value going to be then? Probably zero. The message to valuation experts here is that no valuation automata will help in valuing these cases. It is clear that this effect has the tendency to reduce property values – not just in the case of the subject property, but in the whole surrounding area. Such a detrimental effect on property value is real and can be analyzed in the context of both economics and psychology (Kauko 2019a, 2020a,b). Thus, this effect on property value is partly "purely" economic and partly psychological; in other words, determined on one hand by the market, and on the other hand by emotional and motivational factors (cf. Laakso 1998; Kauko and d'Amato 2012; Grum and Kobal Grum 2014; Forte et al. 2018).

Asylum centers indeed comprise a special case in this set of social nuisance factors. Recent experiences at the external borders of Europe testify to this complex NIMBY problem (see Pechlidou et al. 2020). What matters here is how renters and buyers *perceive* this threat, rather than the factual situation. (So whether or not the occupants of the asylum center are harmless is irrelevant from a market point of view.) Demand falls as a result of unfavorable perceptions, and property prices are determined by demand in the short term. This reduction in nearby property values and rents is obvious, as this price change depends on preferences of potential buyers or renters for avoiding such locations.

Empirical studies on this particular effect are elusive, however. In a spatially extended hedonic study from the Netherlands, Theebe (2002) found that this effect was not generally significant, but that it showed up sporadically. So that the type of asylum center and particular location matter for whether such effect is identifiable or not. More recently, this negative externality effect was also noted in a questionnaire survey of real estate agents in Finland: 86 per cent of respondents considered an asylum center the single most serious negative effect on property value (Talouselämä 2017). The reasons are obvious: Finland experienced an unexpected and unprecedented influx of 30,000 refugees via Sweden in 2015 (e.g. Viren 2017). We can speculate that this figure probably was lower earlier.

When evaluating the tradition of empirical property value impact analysis, a caveat is in place. It is namely possible that the hypothesized price effect is contributed to a more general latent influence than any particular negative externality. To give an example, Navarro and Ruther (2020) concluded that a general "social disorganization in the community" and unobserved neighborhood characteristics are more likely to influence the house prices than the particular hypothesized price effect, in this case, contributed to the presence of registered sex-offenders. It is also likely that, in circumstances where the influence of immigrants on the housing market is assessed, the observed price reduction may be a consequence of the low spending power of the occupants, rather than result of a socially determined effect (Forte et al. 2018).

### Crime and its prevention

Evidently, even in comparatively safe circumstances crime rates and sense of security are connected (Hino et al. 2016). Nevertheless, traditionally crime used to be a neglected topic within real estate analysis. Therefore, Buck and Hakim (1990) set out to investigate if crime reduces property prices. For their case-study they

picked a region known for its casino gambling industry, as this activity was seen as something that, despite its positive effect on prices via the amenity side of increased entertainment opportunities, has a dis-amenity side, via the tendency to increase crime or perceptions thereof – the net effect on price then being either positive or negative. Using statistics of property prices from 63 localities in the Atlantic City region, New Jersey, from a period of 15 years (five years prior to casinos and ten-years post-casinos), Buck and Hakim found out that this indeed was the case for all other crimes, except for larcenies. The suggested policy implication here was to intensify the use of resources to prevent crime, so that local economy would be strengthened. Thus, economic growth and crime reduction go hand in hand.

Unfortunately, not too much has changed since the findings by Buck and Hakim. While various design and management solutions for using the built environment have been tested to combat crime, this tradition promotes only "soft" approaches to tackle serious safety and security problems (see e.g. Hollander and Whitfield 2005; Kajalo and Lindblom 2015; Cozens and Tarca 2016). In this literature the issue is about finding acceptable means, rather than justifying the ends. (A sample of these studies is presented below.)

Chapman and Lombard (2006) carried out statistical analysis on fee-based residential communities based on the American Housing Survey (2003, more than 55,000 units). Some of this form of housing comprises gated communities which they compared with non-gated units. Their findings suggest that neighborhood satisfaction ratings depend, among others, on the lack of knowledge of crime by the residents in the neighborhood. The authors estimated the contemporary share of fee-based housing units in the USA as 10-18 per cent and growing. Chapman and Lombard also suggested that crime is a recurrent theme, and that inhabitants do tend to consider added security measures. Part of this is about the amicability of neighbors too. As for policy implications of this literature, the issue is as to how the police force keep residents aware (but not fearful) of crimes in their area.

Youssef (2015) found that residents of single-access neighborhoods have a stronger "sense of seclusion" than their counterparts in open grid neighborhoods. His study based on interviews concluded that this further lead to stronger "sense of neighborhood cohesion" among the residents. He concluded that establishing a "sense of identity" depends on having "a clear boundary for a neighborhood", even though this ideal would contradict the officially promoted concept of local sustainability.

In general, a "sense of safety" is, as a rule, an important determinant of neighborhood satisfaction and housing choice for residents in present Western context, and controlling the access via the entry point to the neighborhood is here a relevant issue (Youssef, 2015). Other aspects exist too. While the existence of some aspect of negative social externality and problems of extreme diversity in urban populations is universal across larger cities in Western countries, this effect is however context dependent in terms of exact location within an urban area. To see the tipping point for white flight is difficult, when promoting inclusive diversification of communities (i.e. to strengthen their adaptability and innovativeness potential) towards a dangerous situation with establishing risky urban zones in combination

with poorly thought policies (i.e. open border, allowing a parallel society with sharia law, police defunding, leaving juvenile perpetrators unpunished and the establishments of no-go areas). So here are several plausible trajectories and variables involved.

In this vein, the presence of low-income housing developments alone, as an isolated feature, is not responsible for high crimes; it is rather a mix of development and neighborhood characteristics (Skubak Tillyer and Walter 2019). Besides, whether design based solutions are appropriate is rather debatable, in so far as changing the layout and adding fencing can leave a more traditional urban environment disfigured (Beghdoud et al. 2018). Elsewhere, Coaffee (2017) advocates an inclusive "security-driven urban resilience" policy approach at the local level, rather than relying on design solutions or state-based solutions alone. This, at least, is a pragmatic (i.e. rather than purist) approach that captures the main issues at stake.

In the case of USA, after a decline in violent crime rate from the early 90s to the early 2010s, violent crime has begun rising again, and fear of crime and terrorism remains as high as ever (Sampson 2019). Moreover, various equal opportunity policies are likely to have devastating consequences for ordinary citizens, California's Proposition 47 being a case in point. This "public safety realignment" measure meant leniency in penalties for minor larcenies, but as a result, it increased property crimes during the four years observed after it was passed by the voters in 2014 (Bird et al. 2018).[53]

At any rate, the security situation cannot remain satisfactory as long as potentially dangerous groups are allowed to coexist in the spatial proximity of the law-abiding residential populace. Furthermore, as much of recent safety problems are commonly perceived to be a consequence of too lax immigration policy (e.g. van der Woude et al. 2017), best practices, essentially, would focus on immigration, and necessarily, race and ethnicity. The main message here is that we need policy about stemming unsustainable immigration streams; otherwise we find ourselves in the middle of serious problems – both social and economic ones. We also need to remind ourselves that residents tend to leave crime ridden areas, in accordance with white flight predictions, if they have the financial means to do so.

### Non-white overrepresentation in crime

The way ethnic riots are being created and explained away by elites (i.e. the "grievance" culture traditions) provides backup for the realist argument of strenghtening the security apparatus. As the brief failed CHAZ/CHOP experiment in Seattle in June 2020 proves, urban areas *do* need policing. Despite the goodwill of city management, there was no automatic "summer of love" (using Seattle Mayor Jenny Durkan's words), but chaos and violence (including a fatal shooting) erupted soon after the anarchist mob had declared the Capital Hill area in central Seattle autonomous. For a couple of weeks this six block area was declared off-limits for the police force, and guarded by external paramilitaries (presumably related to BLM movement, in itself controversial, of course). In the end, the police force was ordered

[53] Again, one may predict heavy fallout from the law enforcement defunding tendencies being implemented.

to retake the lawless area. The liberal mass media endorsed the protest movement at first, but since then, to avoid further embarrassmenet, decided to cover this incident sparsely. Interestingly, business owners in the area promptly sued the police for abandonment. This was an unprecendeted case.[54]

Especially in the USA ethnic violence is a persistent problem with longstanding institutional focus. The narratives are however of two different kinds, depending on from the perspective one wishes to observe the violence: political correctness requirements or what actually happens in reality. So if different racial groups are unable to live in total harmony, whose fault is it? Who is the perpetrator and who is the victim here? Curiously, unlike anti-minority hate-crimes which tend to occur in more advantaged and organized places, anti-white hate-crimes and motivations for anti-white victimization occur mostly in disorganized neighborhoods with high overall levels of violent crime and high proportion of black residents (Drakulich 2019).

Statistics on interracial violent crime incidents in USA are published by the Bureau of Justice Statistics (2018, table 14). The data is partitioned into six categories for all permutations between white, black and Hispanic populations, On the basis of this evidence, the reality of ethnic group-on-group violence is not what the mainstream media and liberal-leftist academia wants us to believe. Namely, the black group is nine times more likely to attack the white group, than *vice versa*. Because of the current trends in political correctness and constructed non-white victimhood, this fact is not heard often. Instead, the false claim of blacks being overrepresented in violence is upheld.

In USA, blacks are, indeed, overrepresented in general crime statistics, too (Cooper and Smith 2011; Rubenstein 2016). Based on statistics from over a decade ago, despite only comprising 13% of the population, blacks commit over half of the crimes in the USA (Cooper and Smith, 2011). Now ten years later, in the wake of the BLM initiated defunding of police, crime in biggest American cities is going up dramatically. The threat of violent black gangs and criminals is more real than ever in many urban areas there. Americans also fear for the increased arming of BLM, considering all the financial support transferred to them by multinational corporations recently. However, these concerns are not aired in mainstream media or academia, as the spirit is that we should not let the truth distort a good narrative.

### Immigrant overrepresentation in crime

As scholars and researchers, we should acknowledge that both *pro* and *con* views against the ongoing “immigrant crisis” are legitimate, and that the reason this contribution subscribes to the latter has to do with recent well-documented experiences in support of such a stance.[55] Given the rise in anti-immigrant sentiments in Europe, whether or not ethnic diversity represents a tangible threat to the existing residents of neighborhoods, remains a research topic of urgency (van

[54] Mayor Durkan was subsequently asked to resign due to incompetence.

[55] We could perhaps add here that, according to line of argumentation, the right to safe living environment is universal and therefore trumps United Nation’s limited human rights declarations.

Heerden and Ruedin 2019). Arguably, these sentiments are justified by the fact that immigrants are overrepresented in violent criminal activity. The reality is that the mostly uneducated economic migrants from countries in Africa and Middle East are overrepresented as perpetrators of violent and sexual crime by a factor of up to 40 depending on specific circumstances and ethnic background (Jonasson 2017; Kauko 2019a, 2020a,b; cf. Salmi et al. 2015). It is also to note that, in some European countries, this overrepresentation of ethnic immigrant groups, including those of second generation, has increased strongly in the last decade or two – Sweden being worst hit in this respect (Bergman 2019).

In the case of Sweden, even the absolute number of crimes committed by first or second generation immigrants has exceeded the corresponding figure of native perpetrators, despite the latter group still representing approximately two-thirds of the total population (Engellau 2019). Malmö, where gang related shootings and explosions have become worryingly frequent, is often seen as the worst city in whole Europe in this respect, even if having only 320,000 inhabitants (Jönsson 2019).[56] We may also explain this trend by the increase in refugees – as opposed to immigrants in general – as evidence from comparable situations elsewhere (Lower Saxony in Germany) suggests (Pfeiffer et al 2017). Generally speaking, especially immigrants from Middle East and Africa, many of whom are of "refugee" or "unauthorized" status, are far more likely to commit violent crimes than what the indigenous population of their host countries in Europe are. In what follows, we examine some of the implications of this overrepresentation.

Obviously, juvenile crime and violent street gangs have existed long before any mass migration begun (at least, when speaking about modern day volumes). However, in those days just about everyone, at least in public, shared the values of the society at large, as communities were structured in a strongly mono-cultural fashion. Currently, the situation is completely the opposite, as gangs roaming the streets are composed of people of rather different ethnic background and, in some cases, religion. In brief, juvenile perpetrators of crime do not have the same moral standards as the majority of the community any more. This means unavoidable social conflicts and socially unsustainable urban communities. And with changing demographics, the white indigenous populations are increasingly becoming the underdogs in these conflicts.

The cases of violent crimes perpetrated by immigrants from developing countries, including terrorism, have in recent years reached such an extent that this problem is impossible to brush under the carpet anymore. Furthermore, second generation immigrants of certain ethnic groups tend to have a higher crime rates than their first generation immigrant counterparts of same ethnicity (Vazsonyi and Killias 2001; Cho 2019). When looking at specifically European cities with high levels of immigrant crime (Paris, Brussels, Malmö, in particular), the perpetrators can even be third – and probably even fourth – generation immigrants. And often these populations comprise only Muslims from Africa and Asia. Inevitably, the increasing

[56] The corresponding situation in neighboring countries is none too different: Denmark (Danmarks statistik (2018); Norway (Andersen et al. 2017).

presence of such a population then leads to white flight out of the neighborhood and, eventually, the whole urban area.

The facts listed above indeed suggest a bleak prognosis for urban safety at large. However, the possibilities of correcting the trend are not totally diminished yet; we can still find optimistic reasons for turning the course. At the neighborhood level, the collective effects of immigration on violence are complex and mediated by the strength of friendship and kinship networks, showing both positive and negative influences (Feldmeyer et al. 2019). While the effects described above, in many cases, are associated with real harms, it may well be that in some circumstances the specific influences of ethnicity and immigration are drowned out by the more general, classical location-based influences on urban residential mobility and property value such as accessibility and physical qualities. Nonetheless, certain presumptions tend to hold, for example, that the racial and ethnic demographic composition and the socioeconomic ascent of neighborhoods are found to be associated features in the USA (Owens and Candipan 2019). It can also be noted that, in the wake of the contested US election 2020, concerns about how liberal immigration restrictions are likely to deteriorate public safety are apparently as topical as ever (Herman 2020).

## Conclusion

One's preferred living environment may or may not be multicultural, but it has to be safe and secure enough. This chapter has dealt with how individual residents and occupants of workplaces can feel safe in their everyday life. Ideally, neighbors share community values, and it is in everyone's interest to reproduce a safe inclusive space[57]. However, in the current situation of social and political chaos this might require a strong institutional security apparatus, after all, instead of any defunding of police. If necessary, potentially violent criminals and rioters should be excluded from such a community. This requires a relatively authoritarian approach, regardless of its current meta-political unfashionability.

The *Islands of Property Management* approach singles out the relevant influences and scales of market transaction related to (re)development or refurbishment – and more broadly: the management of built structures and their adjacent space. Of all such possible influences, a contribution that earnestly deals with social factors is still an undertheorized topic in this field. None the less, real estate values do fall, to a great extent, because of social factors. White flight and urban decay occur because of social factors. That prices and rents fall, and prosperous inhabitants move out of urban areas, reduce the attractiveness of such places, and inevitably, lead to the erosion of tax revenue of the local government.

The social factors brought up here are, depending on the circumstances, usually understood as compromised safety concerns related to a place-specific combination of black ghetto culture and mass immigration from the developing world. In this context non-whites are a real threat for whites, and not *vice versa*. To say this openly

[57] Not to be confused with the "new left lingua" concept of "safe spaces".

is politically incorrect, of course, even blasphemous, so we need courage to point this out. (One might even be tempted to draw parallels with Galileo here.)

Evidently race is going to be the main dividing socio-political issue of our times. What it boils down to is the ability of someone to fit in with the dominant community – or, without looming conflicts, communities – in a given neighborhood. The groups with the biggest difficulty to integrate into a functional Western society are the blacks (in the USA) and the Muslims (in Europe). The former due to their victimization status in current establishment-driven progressive liberal discourse; the latter due to their fanatic nepotism. We can therefore argue that it is the minorities who should accommodate themselves to majorities; not *vice versa*. This argument used to be completely common sense, and should still be, but is not anymore.

Considering the rising tensions between different racial and ethnic communities, and contrary to the politically correct declarations we have to face, diversity – currently an euphemism for forced increasing the amount of people of color – is not a strength. At least not unconditionally. Namely, different races tend to have rather different endowments, interests and expectations. White people thrive in a society established by themselves. The same applies for other races. Because of this omnipresent preference for similarity, mixing can only work as long as major conflicts and scarcity situations can be avoided. Therefore, to establish a threshold point for "optimal diversity", akin to *Pareto optimality* in welfare economics, could be helpful in solving these problems.

The main issue here is that diversity does not improve societies, if promoted to an untenable point. The untenable point is where the Putnamian trust within a given community of neighbors or coworkers ceases to exist. This is because, past this point, the shared values among the members of the community have been eroded, due to mixing groups that are too different. In other words, the "glue" that is keeping the trust in place: family, religion, ethnicity, race or similar socio-cultural category, has lost its binding power, if not disappeared altogether. Why is that the case? Are we not equal, after all, and therefore able to live together trustfully and in great harmony?

The problem is the loss of sense of familiarity, which, by implication, also means a loss of trust. And the loss of trust might also escalate to a loss of safety, so to an increased feeling of insecurity. A law-abiding person is well adviced to avoid potential encounters with hoodlums, especially where these form groups. We have seen in the news lately what gangs of frustrated angry young men can do. In the final analysis, the ones who have the most to lose have the most reason to fear; and *vice versa*, those who are desperate, and do not have much to lose, may have an great enough incentive to commit crimes, to ofset the risk of being caught. This sense of group-oriented danger is something that also statistical data can corroborate, but for that we need to be able to approximate socio-economic status with ethnicity and race.

The paper has also offered a starting point for a larger research undertaking on security concerns, where both social innovations and digitalization are addressed. In doing so, effects on both human and property rights need to be examined. Ideally,

this quantifiable info – safety index composed of approximations for actual violent crime rate as well as percentages of certain ethnic or immigrant groups who are overrepresented in violent crime – could also be plugged into an alternative property development viability approach. Thus, to enable a socially innovative platform for "place livability", where the set of elements included – safety, security, trust, homogeneity, perception of crime, lack of nuisances and so forth – would replace their established, corporate counterparts based on promotion of tolerance, diversity and multicultural mixing.

The research also aspires to contribute to new urban theory where safety aspects and crime prevention is at the core. Such an endeavor would incorporate both territorial competition and social sustainability discourses. It would also generate a number of policy suggestions about how the urban safety of existing residents and businesses could be ensured amid a situation of potentially hazardous in-moving patterns. And once more, we must recognize that, on both sides of the Atlantic, crime indeed has an ethnic – and racial – dimension.

However, at the same time, we must bolster our thesis against the typical lazy accusations of "racism" or "white supremacy" which, unfortunately, serious minded academics today have to confront. This can be done conveniently by pointing out that such accusations would be moral, as opposed to scientific, rational or factual evidence based. As such, how the right to a safe place would relate to judgements of "racism" is not clear-cut at all. While the concept of "racism" is morally suspicious and metaphysical, rather than scientific, biologically this whole critique is point-less; indeed, what we today call "racism" might even be necessary for the survival of any organism, including humans.

In the spirit of Jardina's (2019) eloquent argumentation, humans are tribal creatures, when push comes to shove.[58] We cannot ignore deeper instincts programmed into us, despite our cognitively developed brain functions. In a crisis situation, cognitive higher level "learnt" behavior is forgotten, and replaced by simpler neural processes. So the thin crust of altruism disappears; instead, we just favor our own kin, or reasonable similarity, the very least. By implication, what by today's standards is "racism", becomes the norm, as with all animals including humans. From a public choice perspective, the logical assertion [sic] would then be that, if we really live in a "racist" reality, as so often heard, we would need representatives of this "silent majority" of "racist" communities to decide about how we develop our built environments – and not just physically, but socially too.

## References

Abrajano, M., and Hajnal, Z. (2015). *White Backlash: Immigration, Race, and American Politics*. Princeton: Princeton University Press.

[58] This principle of "favoring one's own kin" applies also conversely. For example, recent Jewish gentrifiers in New York would, wishfully, consider themselves socially constructed non-whites, but, nevertheless, end up being physically attacked by local black street-gangs – because of their visible "whiteness".

Ahmed, K. G. (2011). Evaluation of Social and Cultural Sustainability in Typical Public House Models in Al Ain, UAE. *International Journal of Sustainable Development Planning*, 6(1): 49–80.

Andersen, S. N., Holtsmark, B. and Mohn, S. B. (2017). "Kriminalitet blant innvandrere og norskfødte med innvandrerforeldre En analyse av registerdata for perioden 1992-2015," (in Norwegian) Statistics Norway, https://www.ssb.no/sosiale-forhold-og-kriminalitet/artikler-og-publikasjoner/_attachment/332143?_ts=16035d6f0d8 [accessed 18 November 2019].

Beghdoud, L. Kh., Kacemi, M., Tewfik Bouroumi, M. and Walid, H. (2018). Problems of urban violence: The case of Boulevard Macta in Sidi Bel Abbes. *Urbanism Architecture Constructions*, 9(1): 23–38.

Bergman, J. (2019). "Sweden Spinning Out of Control," Gatestone Institute, https://www.gatestoneinstitute.org/14819/sweden-crime [accessed 18 November 2019].

Bird, M., Lofstrom, M., Martin, B., Raphael, S., and Nguyen, V. (2018). "The Impact of Proposition 47 on Crime and Recidivism", PPIC, July, https://www.ppic.org/wp-content/uploads/r_0618mbr.pdf [accessed 3 December 2019].

Buck, A. J. and Hakim, S. (1990). Are Property Values Being Adversely Affected by Crime? *Journal of Property Valuation & Investment*, 9: 37–44.

Bureau of Justice Statistics (2018). National Crime Victimization Survey, USA.

Chapman, D. and Lombard, J. (2006). Determinants of Neighbourhood Satisfaction in Fee-Based Gated and Nongated Communities. *Urban Affairs Review*, 41(6): 769–799.

Cho, J. Y. (2019). Latino Nativity Variations Link to Street Violence in Drug Markets. *Crime & Delinquency*, 65(1): 69–93.

Cianetti, L. (2020). Governing the multicultural city: Europe's 'great urban expectations' facing austerity and resurgent nativism. *Urban Studies*, 57(13): 2697–2714.

Coaffee, J. (2017). A Balanced Response? The Quest for Proportionate Urban Security. *International Journal of Urban and Regional Research*, 41: 1–6.

Cooper, A. and Smith, B. L. (2011). "Homicide Trends in the United States, 1980-2008," U.S. Department of Justice, https://www.bjs.gov/content/pub/pdf/htus8008.pdf [accessed 11 July 2020].

Cozens, P. and Tarca, M. (2016). Exploring housing maintenance and vacancy in Western Australia – Perceptions of crime and crime prevention through environmental design. *Property Management*, 34(3): 199–220.

Danmarks statistik (2018). "Invandrere I Danmark 2018," (in Danish) https://www.dst.dk/da/Statistik/Publikationer/VisPub?cid=29445 [accessed 18 November 2019].

Del Giudice, V., De Paola, P., Torrieri, F., and Nijkamp, P. J., and Shapira, A. (2019). Real Estate Investment Choices and Decision Support Systems. *Sustainability*, 11, 3110.

Dinesen, P. T., Schaeffer, M. and Sønderskov, K. M. (2019). Ethnic Diversity and Social Trust: A Narrative and Meta-Analytical Review, Preprint version. *Annual Review of Political Science*, 23.

Drakulich, K., Fay-Ramirez, S. and Benier, K. (2019). The Neighborhood Context of Perceived and Reported Anti-White Hate Crimes. *Race and Justice*: 1–19.

Dunse, N., Thanos, S. and Bramley, G. (2013). Planning policy, housing density and consumer preferences. *Journal of Property Research*, 30(3): 221–238.

Engellau, P. (2019). “Invandring och brottslighet – et trettioårsperspektiv,” (in Swedish) Stiftelsen Det Goda Samhället, https://detgodasamhalletdotcom.files.wordpress.com/2019/06/rapport-om-invandring-och-brottslighet.pdf [accessed 18 November 2019].

Feldmeyer, B., Madero-Hernandez, A., Rojas-Gaona, C. E. and Copley Sabon, L. (2019). Immigration, Collective Efficacy, Social Ties, and Violence: Unpacking the Mediating Mechanisms in Immigration Effects on Neighborhood-Level Violence. *Race and Justice*, 9(2): 123–150.

Forte, F., Antoniucci, V. and De Paola, P. (2018). Immigration and the Housing Market: The Case of Castel Volturno, in Campania Region, Italy. *Sustainability*, 10: 343.

Fosse, E. and Gross, N. (2012). Why are Professors Liberal? *Theory and Society*, 41: 127–168.

Fossett, M. and Waren, W. (2005). Overlooked Implications of Ethnic Preferences for Residential Segregation in Agent-based Models. *Urban Studie*s, 42(11): 1893–1917.

Grant, J. L. (2009). Theory and Practice in Planning the Suburbs: Challenges to Implementing New Urbanism, Smart Growth, and Sustainability Principles. *Planning Theory and Practice*, 10(1), March: 11–33.

Graves, E. (2019). Moving to Improve? A Qualitative Meta-analysis of Neighborhood Violence and Residential Decision-making among Housing Voucher Holders. *Journal of Planning Literature*, 34(1): 19–37.

Grum, B. and Kobal Grum, D. (2014). A model of real estate and psychological factors in decision-making to buy real estate. *Urbani izziv*, 26(1): 82–91.

Guy, S., Henneberry, J. and Rowley, S. (2002). Development Cultures and Urban Regeneration. *Urban Studies*, 39(7): 1181–1196.

Harari, Y. N. (2020) “The world after coronavirus,” *Financial Times* (20 March), https://www.ft.com/content/19d90308-6858-11ea-a3c9-1fe6fedcca75 [accessed 23 May 2020].

Herman, M. (2020). “Biden's Immigration Policies Could Threaten Public Safety,” *Newsmax* (25 November), https://www.newsmax.com/platinum/biden-immigration/2020/11/25/id/998748/ [accessed 28 November 2020].

Hino, K., Uesugi, M. and Asami, Y. (2016). Official Crime Rates and Residents’ Sense of Security Across Neighbourhoods in Tokyo, Japan. *Urban Affairs Review*: 1–25.

Hollander, J. B. and Whitfield, C. (2005). The appearance of security zones in US cities after 9/11. *Property Management*, 23(4): 244–256.

Jardina, A. (2019). *White Identity Politics*. Cambridge, United Kingdom & New York, NY, USA: Cambridge University Press.

Jonasson, J. P. (2017). “Sexualbrottslighet bland män födda i Sverige och i utlandet – en medborgarstudie,” (in Swedish) https://pjjonasson.files.wordpress.com/2017/10/sexualbrottslighet_bland_man_fodda_i_sverige_och_i_utlandet.pdf. [accessed 15 May, 2018].

Jönsson, H. (2019). “Abandoning Malmö to Its Criminals,” *Quillette* (15 November), https://quillette.com/2019/11/15/abandoning-malmo-to-its-criminals/ [accessed 25 November, 2019].

Kajalo, S. and Lindblom, A. (2015). Creating a safe and pleasant shopping environment: a retailer’s view. *Property Management*, 33(3): 275–286.

Kauko, T. (2004). Sign value, topophilia and house prices, *Environment and Planning A*, 36:5: 859–878.

Kauko, T. (2006a). What makes a location attractive for the housing consumer? Preliminary findings from metropolitan Helsinki and Randstad Holland using the analytical hierarchy process. *Journal of Housing and the Built Environment*, 21: 159–176.

Kauko, T. (2006b). Expressions of housing consumer preferences – a proposition for a research agenda, *Housing, Theory and Society*, 23(2): 92–108.

Kauko, T. (2010). Sustainable urban property development and neighbourhood dynamics, *The Open Urban Studies Journal*, 3: 103–111.

Kauko, T. (2015). Finding an apt strategy for (what we currently believe is) sustainable urban land use and area development. *Urbanism. Architechture. Constructions*, 6(3): 11–34.

Kauko, T. (2018). Time for the Urban Safety Discussion to Move On? *International Journal of Current Advanced Research*, 7:5(I): 12799–12800.

Kauko, T. (2019a). *Decline and Fall… or survival of Western Urbanity. Some thoughts on urban safety in a warming political climate*. Riga: LAP.

Kauko, T. (2019b). How to pick relevant sustainability criteria for the built environment: A bottom-up approach, *Urbanism. Architecture. Constructions*, 10(1): 5–16.

Kauko, T. (2020a). In search for a realistic perspective on urban safety: The attractiveness concerns caused by mass-immigration, *Urbanism. Architecture. Constructions*, 11(1): 17–32.

Kauko, T. (2020b). *Illusions of Wokeness and Western Urbanism. Some ruminations*. Riga: LAP.

Kauko, T. and d’Amato, M. (2012). “Neighbourhood effects.” In *International Encyclopedia of Housing and Home,* (e-book) Elsevier, MS 166, 50–54.

Killias, M. (1989). Criminality among Second-Generation Immigrants in Western Europe: A Review of the Evidence. *Criminal Justice Review*, 14(1): 13–42.

Kirkegaard, E. O. W. (2020). “Mental illness and the left,” *Mankind Quarterly* (February), (preprint).

Kotkin, J. (2020). “Viral Politics,” *Quillette* (18 April), https://quillette.com/2020/04/18/viral-politics/ [accessed 28 April 2020].

Laakso, S. (1997). “Urban Housing Prices and the Demand for Housing Characteristics,” Helsinki, The Research Institute of the Finnish Economy (ETLA).

Lehti, M., Salmi, V., Aaltonen, M., Danielsson, P. and others (2014). “Maahanmuuttajat rikosten uhreina ja tekijöinä,” [Immigrants as crime victims and offenders in Finland, in Finnish, with English summary] Oikeuspoliittisen tutkimuslaitoksen tutkimuksia 265.

Lens, M. C. (2013). Subsidized Housing and Crime: Theory, Mechanisms, and Evidence. *Journal of Planning Literature*, 28(4): 352–363.

Lützkendorf, Th, Fan, W. and Lorenz, D. (2011). Engaging financial stakeholders: opportunities for a sustainable built environment. *Building Research & Information*, 39(5): 483–503.

MacDonald, K. (2010). Why are Professors Liberals? *The Occidental Quarterly*, 10(2): summer: 57–87.

Manzi, T. Lucas, K., Lloyd-Jones, T. and Allen, J. (2010b). "Understanding Social Sustainability: Key Concepts and Developments in Theory and Practice." In Manzi, T., Lucas, K., Lloyd-Jones, T. and Allen, J. (eds.), *Social Sustainability in Urban Areas*, 1–28. London and Washington D.C.: Earthscan.

Marshall, I. H and Marshall, Ch. E. (1997). Immigrants, Crime and Prison Commitments in the Netherlands: A Time Series Analysis (1952-1988). *Criminal Justice Policy Review*, 8(1): 25–55.

Navarro, J. C. and Ruther, M. (2020). A geospatial analysis between the sale prices of single-family properties and the presence of registered sex offenders in Jefferson County, Kentucky. *Urban Studies*, 57(5): 944–958.

Owens, A. and Candipan, J. (2019). Racial/Ethnic Transition and Hierarchy Among Ascending Neighborhoods. *Urban Affairs Review*, 55(6): 1550–1578.

Pechlidou, E., Frangopoulos, Y. and Hatziprokopiou, P. (2020). "The spatial management of the "migration crisis" and local opposition: Public discourse, actors and reactions against refugee accommodation in Thessaloniki." In Markou, A. S. and Zlatkova, M. (eds), *Post-Urbanities, cultural reconsiderations and tourism in the Balkans*, 139–160. Athens: Hêrodotos.

Permentier, M., Van Ham, M. and Bolt, G. (2008). Same Neighbourhood … Different Views? A Confrontation of Internal and External Neighbourhood Reputations. *Housing Studies*, 23(6): 833–855.

Pfeiffer, Ch., Baier, D. and Kliem, S. (2017). "Erhebliche Sicherheitslücken im deutschen Asylsystem," (in German), BAMF.

Putnam, R. (2007). *E Pluribus Unum*: Diversity and Community in the Twenty-first Century The 2006 Johan Skytte Prize Lecture. *Scandinavian Political Studies*, 30(2): 137–174.

*Redfield & Wilton Strategies* (2020). "A Majority of Britons Support Reinstating the Death Penalty for Terrorism Convicts," (17 July) https://redfieldandwiltonstrategies.com/a-majority-of-britons-support-reinstating-the-death-penalty-for-terrorism-convicts/ [accessed 27 July 2020].

Rokem, J. and Vaughan, L. (2019). Geographies of ethnic segregation in Stockholm: The role of mobility and co-presence in shaping the 'diverse' city. *Urban Studies*, 56(12): 2426–2446.

Rubenstein, E. S. (2016). *The Colour of Crime. Race, Crime and Justice in America*. Rev. ed. Oakton, VA: New Century Foundation.

Salmi, V., Kivivuori, J. and Aaltonen, M. (2015). Correlates of immigrant youth crime in Finland. *European Journal of Criminology*, 12(6): 681–699.

Sampson, R. J. (2019). *Neighbourhood effects and beyond:* Explaining the paradoxes of inequality in the changing American metropolis. *Urban Studies*, 56(1): 3–32.

Skovgaard Nielsen, R. and Hedegaard Winther, A. (2020). The complexity of diversity in reality: Perceptions of urban diversity, *Urban Studies*, 57(14): 2817–2832.

Skubak Tillyer, M. and Walter, R. (2019). Low-Income Housing and Crime: The Influence of Housing Development and Neighborhood Characteristics. *Crime & Delinquency*, 65(7): 969–993.

Smets, P. and Kreuk, N. (2008). Together or Separate in the Neighbourhood? Contacts Between Natives and Turks in Amsterdam. *The Open Urban Studies Journa*l, 1: 35–47.

*Talouselämä* (2017). "Kiinteistövälittäjille suunnattu kysely kertoo: Asunnon sijainti vastaanottokeskuksen lähellä voi pienentää myyntihintaa," (in Finnish) (1 September) http://www.talouselama.fi/uutiset/kiinteistovalittajille-suunnattu-kysely-kertoo-asunnon-sijainti-vastaanottokeskuksen-lahella-voi-pienentaa-myyntihintaa-6673006 [accessed 13 September 2017].

Theebe, M. A. J. (2002). "Housing Market Risks." PhD Thesis, University of Amsterdam. http://dare.uva.nl/search?arno.record.id=106654 [accessed 16 January 2017].

Tuan Y.-F. (1974). *Topophilia: A Study Of Environmental Perception, Attitudes, And Values*. PrenticeHall, Englewood Cliffs, NJ.

van der Woude, M, Barker, V. and van der Leun, J. (2017). Crimmigration in Europe. *European Journal of Criminology*, 14(1): 3–6.

van Heerden, S. and Ruedin, D. (2019). How attitudes towards immigrants are shaped by residential context: The role of ethnic diversity dynamics and immigrant visibility. *Urban Studies*, 56(2): 317–334.

Vazsonyi, A.T. and Killias, M. (2001). Immigration and crime among youth in Switzerland. *Criminal Justice and Behaviour*, 28(3): 329–366.

Viren, M.(2017). "Maahanmuutto – Talouden ongelma vai ongelmien ratkaisu?" (In Finnish), Suomen Perusta.

Wallner, H.P., Narodoslawsky, M. and Moser, F. (1996). Islands of sustainability: a bottom-up approach towards sustainable development. *Environment and Planning A*, 28(19): 1763–1778.

Wessel, T., Andersson, R., Kauppinen, T. and Skifter Andersen, H. (2017). Spatial Integration of Immigrants in Nordic Cities: The Relevance of Spatial Assimilation Theory in a Welfare State Context. *Urban Affairs Review* 53(3): 812–842.

Wessel, T. and Nordvik, V. (2019). Mixed neighbourhoods and native out-mobility in the Oslo region: The importance of parenthood. *Urban Studies*, 56(5): 885–905.

Youssef, K. (2015). Single-Access Neighbourhoods and Neighbourhood Cohesion. *Critical Housing Analysis*, 2(2): 1–10.

# User centre design in living environments is the way into a healthy environment

**Mara Gabriela Diaconu**

Norwegian University of Science and Technology, Trondheim, Norway
mara.diaconu@ntnu.no

## Abstract

The concept of age-friendly environments have been developed by WHO in 2007 to show that health and well-being is determined not only by our genes and personal characteristics but also by the physical and social environments in which we live our lives, thus embedding the concepts of age-friendly buildings, neighbourhoods, cities and communities. The concept makes use of a holistic approach to optimise people's social and physical environments as well as defining supportive provisions (such as Information and Communication Technologies, healthcare and services) to improve independent living, equity and an active and healthy participation in society. Moreover, the United Nations stated with the Sustainable Development Goals (in particular, with Goal 3 related to health and wellbeing and Goal 11 focused on cities and human settlements) that sustainable age-friendly environments represent the baseline for guaranteeing a better future. The article is based on the work from NET4Age-Friendly and it shows that the living environments are important determinants of the trajectories of intrinsic capacity and functional ability over a person's life course and into older age. Several domains of functional ability are particularly important in later life such as neighbourhood, build environments of living, city environment, socio-economic aspects. Interdisciplinary aspects related to the design and development of age-friendly living environments are still disparate and scattered in creating a vision for a sustainable city. The importance of living environments is explored in enhancing the functional ability of people from the perspective of user-centred inclusive design in age-friendly environments and communities. The knowledge base from initiatives such as SHAFE, European Innovation Partnership on Active and Healthy Ageing, Covenant on Demographic Change: towards an age-friendly Europe that much existing European policies shows that user-centred design approaches and practices have little connection to citizens' needs (demand) and to the municipalities and entrepreneurs who are empowered to create new solutions for the future age-friendly environments including the digital technologies and tools of the future. We explore how user-centred inclusive design of age-friendly environments could change the communities and create more inclusion, accessibility, usability, and engagement around the living environment and how this has an impact on the functional ability of the people.

Keywords: living environment, age-friendly environment, health and sustainability.

## Introduction

The term healthy environment is an extensive one, encompassing many different meanings. To show even more the complexity of the matter we need to take into consideration that the environments that are healthy for one population are not always healthy for another. This makes it hard to agree upon what is needed to create a healthy environment, and what is the impact of the living environment for the population.

The concept of age-friendly living environments has been developed by WHO in 2007 to show that health and well-being are determined not only by our genes and personal characteristics but also by the physical and social environments in which we live our lives, thus embedding the concepts of age-friendly buildings, neighbourhoods, cities and communities (2018). The concept makes use of a holistic approach to optimise peoples' social and physical environments as well as defining supportive provisions (such as Information and Communication Technologies (ICT), healthcare and services) to improve independent living, equity and an active and healthy participation in society. Moreover, the United Nations stated with the Sustainable Development Goals (in particular, with Goal 3 related to health and wellbeing and Goal 11 focused on cities and human settlements) that sustainable age-friendly environments represent the baseline for guaranteeing a better future.

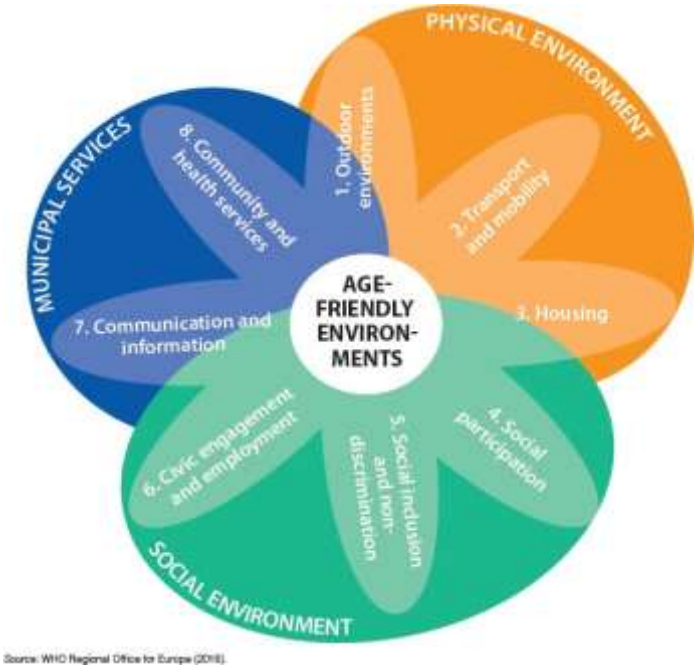



*Figure 3 Eight domains for age-friendly action*

WHO's Global age-friendly cities: a guide (2007a) has served as methodological reference point for the age-friendly environments movement – a movement that has grown dynamically ever since. The 2007 guide developed a framework of eight domains (Fig.1) for age-friendly action in cooperation with 33 cities globally, that according with the research done in comparison with other classifications Lui et al. (2009), Steels (2015), Moulaert & Garon (2016), Plouffe et al. (2016) they concluded

that the framework is still fit for the purpose. In this article we will use this framework classification and add to it the layer of user-centre inclusive design approach.

The knowledge base from initiatives such as SHAFE, European Innovation Partnership on Active and Healthy Ageing (EIP on AHA), Covenant on Demographic Change: towards an age-friendly Europe that much existing European policies shows that user-centred design approaches and practices have little connection to citizens' needs (demand) and to the municipalities and entrepreneurs who are empowered to create new solutions for the future age-friendly environments including the digital technologies and tools of the future. The engagement of citizens, communities and inclusion in the development of local, regional and national strategies and actions needs to be pushed and encouraged.

The article is based on the work from NET4Age-Friendly and it shows that user-centre inclusive design of age-friendly environments could change the communities and create more inclusion, accessibility, usability, and engagement around the healthy living environment with an impact on the functional ability over a person's life course. Several domains of functional ability are particularly important in later life such as neighbourhood, build environments of living, city environment, socio-economic aspects. Interdisciplinary aspects related to the design and development of age-friendly living environments are still disparate and scattered in creating a vision for a sustainable city. The importance of living environments is explored in enhancing the functional ability of people from the perspective of user-centred inclusive design in age-friendly environments and communities.

## Background

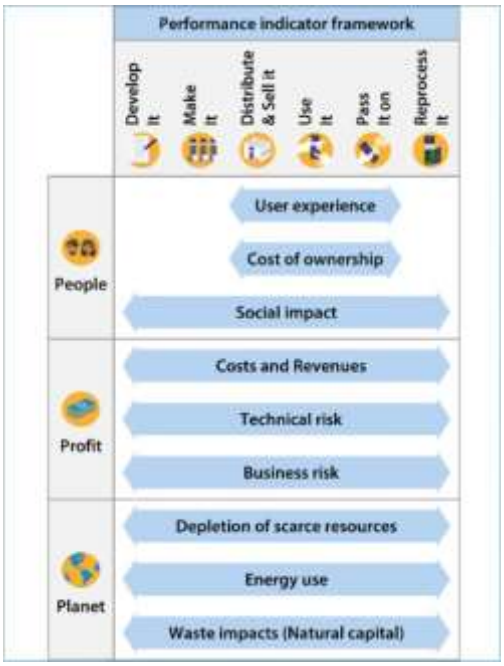
Inclusive environments are places that work better for everybody whether that place is a workplace, park, neighbourhood, care home or bus stop. A user-centre inclusive design to planning, design and management is an opportunity to use creativity, the needs of the community and agile thinking to make places that reflect the diversity and needs of people who want to use them. If inclusive design is most of the time understood as focusing on diversity of people, the user-centre inclusive design should bring the needs of people at first by creating the opportunity for people to engage and interact with the development of their living environments.

According to Microsoft ''*Inclusive design* is a methodology, born out of digital environments, that enables and draws on the full range of human diversity. Most importantly, this means including and learning from people with a range of perspectives" (2021). So, in one of the core definitions of inclusive design the user-centre approach is embedded and creates the way for the holders of products or resources to understand how best to design products and environments that satisfy users' needs and motivations, expand human interactions by making them more inclusive.

University of Cambridge is proposing an inclusive design toolkit that should be considered when thinking about how well a product or services is performing. Inclusive design emphasizes the contribution that understanding user diversity makes to informing these decisions, and thus to including as many people as

possible (2020). The example set of ‘Product performance indicators’, focuses on the diversity of people and the impact of this on design decisions. The complete set of performance indicators consider a wider set of aspects concerned with People, Profit and Planet in order to examine how the different aspects have an impact across the whole life cycle of the product or services offered.

Should we consider the living environments as a product or service then the Performance indicator framework presented on Fig. 2 are a good practice to follow.




*Source: University of Cambridge, Inclusive Design Toolkit 2021*

*Figure 4 Performance indicator framework (Inclusive Design Toolkit, University of Cambridge)*

While the consideration of population diversity has initially focused on the perspective of variations in people’s abilities, we can broaden this concept to comprehend the diversity of varied real-world contexts, lifestyles, aspirations, genders, and past experiences. When using the user-centre inclusive design approached in designing living environments for the population not only creates a greater access to the facilities that are provided, but also reflects the real and evolving differences among people and created the inclusive and community engagement feeling.

Even though for the research and implementation of healthy living environments policies EU-funded frame programmes (FP7 and H2020), WHO strategies and other regional and national strategies have been developed they are mostly tested within pilots and the difficulty to scale-up to markets (WE4AHA, 2019) and to integrate between interdisciplinary research areas represent some of the main obstacles in boosting the creation and deployment of health living environments. All these solutions are developed isolated and the challenge of integrating all of them along with the design of future solutions following common standards for their optimal

integration with other solutions is the goal of the NET4Age Friendly COST Action Network (2020).

Looking further into the research and definitions living environments include the home, community and broader society, and all the factors within them such as the built environment, people and their relationships, attitudes and values, health and social policies, the systems that support them and the services that they implement. But having this knowledge is not the key to solve the equation of healthy living in environments. Two main steps must be taken into consideration for a healthy living environment: community engagement and access to live in environments that support and maintain one's intrinsic capacity and functional ability.

WHO (2020) in the topic "Healthy ageing and functional ability" defines functional ability as having the capabilities that enable all people to be and do what they have reason to value. Functional ability consists of the intrinsic capacity of the individual, relevant environmental characteristics, and the interaction between them. Intrinsic capacity comprises all the mental and physical capacities that a person can draw on and includes their ability to walk, think, see, hear, and remember.

We need to overcome the fragmentation and critical gaps for both design and implementation of healthy living environments in order to address the future changed that will take place in the society from growing number of ageing populations, to new digital technologies and new life style, also due to the ongoing pandemic COVID-19 situation. Creation of more inclusion, accessibility, usability, and engagement around the healthy living environment can be reached by connecting and stimulation of multidisciplinary, international and mix teams between researchers, scientists, public sector, entrepreneurs, and citizens that will foster the collaboration, spread of knowledge, improve holistic strategies and support the development of the use-centre design solutions.

## Materials and Methodology

The methodology that is proposed aims to overcome fragmentation and critical gaps at both conceptual and pragmatic innovation levels in order to address the future requirements for healthy living environments.

### Creation of networks

Development of local and regional ecosystem networks with experts and users from different fields that will connect and collect initiatives. Engagement of groups as showed in the figure below (Figure 3) such as citizen advocacy organisations, public authorities, expert researchers, policy makers, industry and business sector in cooperation will give the possibility to:

I. Collect the best practices at local, regional, and national levels.
II. Gather multi stakeholder profiles for debates and engagement in the development of the actual and future living environments.
III. Create connections and community partnership.

The inclusion of citizens' representatives and citizens in networking activities, multidisciplinary collaboration, exchange of knowledge, and scientific excellence, as well as the expertise of local and regional stakeholders will address the successful implementation and upscale of the age-friendly environments paradigm.

As shown in figure 4 below those networks meet and have a common shared networks place for knowledge, best practices, ideas, and also future creation of new initiatives.

*Figure 5 Components of a network*

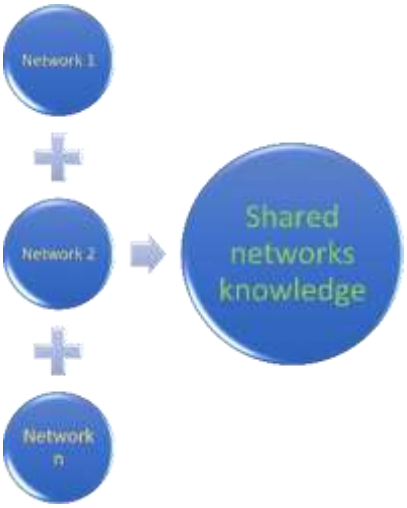



*Figure 6 Collaboration of networks*

Develop methods for data collection

The networks are living bodies that are collecting, bringing and holding knowledge on various domains, initiatives and they have the power to inclusive design to bring the user-centre living environment further. The specific definition of healthy living environments cannot be reached without a comprehensive assessment of initiatives, terms, and framework definitions and specific operationalizations of the living environments elements.

The approach for defining domain and terminology framework for the networks to collect information consisted of the following steps: first relevant domains and key terms related to the healthy living environments such as health literacy, level or accessibility to data, similar initiatives in studies for living environments; secondly tools for user needs collection, user engagement and inclusive design need to be identified by the networks. The collection of data, information, studies and resources is done through the network hubs established and then shared among the combine networks. The healthy living environments can be identified, define and implemented if legislation and ethics are supporting the initiatives, so the collection

of data about these aspects became the third step, followed by the fourth where gathering information about solution, spaces, facilities and willingness to change the living environments are being collected.

Furthermore, this information is transformed in a framework and follows the flow described in figure 5 below. (figure 5). In this approach the collection of data is user-centred and provided on an integrated basis. Ideally, most could be collected by a multidisciplinary team.

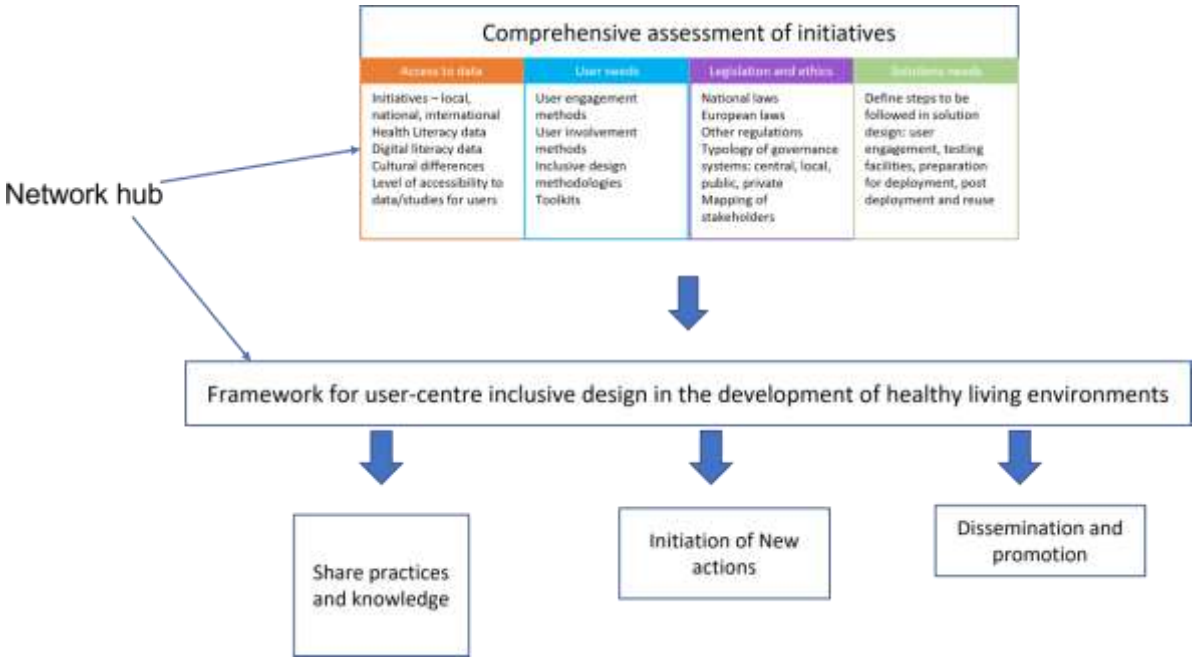



*Figure 7 How to collect and share the network information*

Community engagement and user-centre design

Community engagement in developing of health living environments are creating the possibility to have better inclusion, accessibility, usability, and reachable solution for the people. No matter if someone walks, drives, uses a walker or wheelchair, or is having hearing or vision problems, works or lives in an area.

User centred and inclusive design in age-friendly environments and communities is the important factor in creating impact in functional ability of people. Inclusion, accessibility, usability, and engagement around environmental, design, technology and infrastructure design thinking or just tools that are used to bring the home environment and public environment in a one harmonised friendly living environment. Fostering the participation of citizens initiatives such as active and healthy ageing, independent living, and community engagement is innovating and creating healthy living environments. However local and regional experience is lacking and the implication of stakeholders in strategies is also missing. We try to show the need to develop and build capacity for stakeholders to get engaged in developing of healthy living environments. With the ongoing technology

development, digitization of society, new opportunities arise to foster these living and working environments. Smart Healthy Age-Friendly Environments (SHAFE) and European Innovation Partnership on Active and Healthy Ageing (EIP AHA) are most vocal initiatives that are following the WHO strategy (2007a) and aims, trying to improve them and also bring new tools, research and findings in the public discussion.

Learning from our first collection of findings are showing that in lower scale and small pilots the user-centre design has become a good practice for the development of living environment mostly due to requirements of the grant holder or funding received.

Global data and information on healthy aging created the platform for future collection of data relating to living environments, health and functioning of the age, as well as associated health and social needs, ways to meet them by more integration of healthcare provision with social networks and services, built environment and ICT sector.

**Results**

The user-centred inclusive design of age-friendly environments is changing the communities and create more inclusion, accessibility, usability, and engagement around the living environment. Networking initiatives, sharing of knowledge and user-centre design will enable and support actions in countries that will ensure the development of healthy living environment, ensure inclusion and positive impact in functional ability of the people.

Due to the last year changes, in the way population is living, individuals have become more aware of the impact the home and build environment, city and social environment have toward the health and based on individual challenges important changes in attitudes and behaviour took place. (World Happiness Report, 2021)

Integrated social and health care services should be developed for the creation of the health living environments. Development of guidelines and tools, dissemination and spread of knowledge in communities and stakeholders, enabling the creation of a health system that takes into consideration the impact of functional ability of people considering the living environment as part of the potential health problem and diseases needs to create the agenda of the communities and state strategies for age-friendly environments.

Long-term strategies and care systems if developed in each country, specific per country, depending on the existing infrastructure, resources, culture, and choices of society could shape the healthy living environment and create a better quality of life for the people. The good practices developed in some countries, in some pilot's projects such as SIFORAGE, AGEWELL, ACTIVAGE, CITY4AGE, PULSE etc could be used a framework for learning and adapted to the national and local specificities.

## Future Challenges

The implementation of strategies for better living environments and user-centre design are facing continuous challenges. Scattered information about tools, initiatives, practices on user-entre design, health living environments are not making easy the access to information. No integrated platform is available to connect all these initiatives and give a good overview of the situation. Even though WHO's initiatives and EC strategies are published and maybe know by researchers, in most cases they do not arrive to the citizens or local stakeholders. In some cases, the language that is used in these reports and strategies are too technical and the understanding of terms, concepts and frameworks is low.

Another challenge could be the limited implication of people, users in the development of the healthy living environments. Or when this exists it is at small community and the good practices are not spread or copied in other cities, countries. The low implication could come for the no culture for implication in the society, distrust in the government or just no dissemination of information from the local/regional/national authorities. Cases of engagement or implication of citizens in strategy development where the same institution is applying different or contradictory practices are still seen in a wide range of countries. So, standardization of practices and methods is also a future action that should be considered.

Individual or collective behaviour change are hard to achieve without sustain efforts from the governments and equally from each person. As individuals we each have the responsibility to change how we live on a day-by-day basis, we can pay our part in changing the living environment, implement small changes, and give good examples. Behaviour change tools and techniques are vital resources for local and regional stakeholders to work with the community and the people. The lack of an integrated approach on behaviour changes tools, user-centre design tools and good practices makes the implementation of healthy living environments hard.

Lack on creating a common understanding between health, social and economic aspects. Better understanding of costs and possibilities for healthy living environments and impact on population health is needed. The usual discussion of the economy of health is that with the age it becomes a burden for the societies without considering the living environment aspects, nor the social capital that people are caring with them. In addition to this, the new challenges of new living patterns and viruses should be taking into consideration where the living environment – home setting or public setting- becomes even more important.

## Conclusion

Thus, the answer of how to create a healthy environment is not likely to come from a single source, but instead it comes to common participation of people in bits and pieces. If we consider the healthy living environments a puzzle, then each person has the responsibility of deciding how to fit those pieces together to create a healthier life and better outcomes.

Future work withing this study is to collect more information from the networks, including the refinement of the methodology with the respect to the tools and create concrete study cases. While the user-centre design of health living environments is the currently the focus with the impact in functional ability of people we might need to assess new indicators in order to validate and assess the applicability of the framework. Creating a strong link between user-centre design and healthy living environments will ultimately push forward the research paradigm on the impact on functional ability over a person life cycle.

## Acknowledgement

I would like to acknowledge the COST Action programme and Horizon 2020 Framework Programme of the European Union for their support with the CA 19136 NET4Age Friendly *International interdisciplinary network on health and wellbeing in an age-friendly digital world, to promote social inclusion, independent living and active and healthy ageing in society.* (https://www.net4age.eu/). COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.

## References

AGEWELL: Ageing Migrants' Well-being: The Structuring of Local Welfare Provisions at the Intersection of Public, Private, Third Sector and the Family, ID 328518.

ACTIVAGE: ACTivating InnoVative IoT smart living environments for AGEing well, ID: 732679

CITY4AGE: Elderly-friendly City services for active and healthy ageing, ID: 689731

Beard JR, Officer A, de Carvalho IA, Sadana R, Pot AM, Michel JP, et al. (2015) The World report on ageing and health: a policy framework for healthy ageing. Lancet.

De Carvalho IA, Finbarr C Martin, Cesari M, Yuka Sumi, Thiyagarajan, JA, Beard Jr (2017). Operationalising the concept of intrinsic capacity in clinical settings, WHO Clinical Consortium on Healthy Ageing.

European commission: European Innovation Partnership on Active and Healthy Ageing (2021). https://ec.europa.eu/eip/ageing/home_en . (accessed 20 August. 2021).

European Commission: Towards an Age-Friendly Europe: a Covenant on Demographic (2015). https://ec.europa.eu/eip/ageing/news/towards-age-friendly-europe-new-covenant-demographicchange_en. (accessed 20 August. 2021).

Lui C-W, Everingham J-A, Warburton J, Cuthill M, Bartlett H (2009). What makes a community age-friendly: a review of international literature. Australasian J Ageing. 28(3):116–21.

Moulaert T, Garon S, editors. (2016). Age-friendly cities and communities in international comparison: political lessons, scientific avenues, and democratic issues. New York: Springer.

Microsoft. "Inclusive Design." *Microsoft*, undated. (accessed 27 August. 2021).

Okabe-Miyamoto Karynna, Lyubomirsky Sonja World Happiness Report (2021). Chapter 6 Social connection and well-being during COVID-19, University of California, Riverside

PULSE: Participatory Urban Living for Sustainable Environments, ID 727816.

Plouffe L, Kalache A, Voelcker I (2016). A critical review of the WHO age-friendly cities methodology and its implementation. In: Moulaert T, Garon S, editors. (2016). Age-friendly cities and communities in international comparison: political lessons, scientific avenues, and democratic issues. New York: Springer: 19–36.

Smart Healthy Age-Friendly Environments (SHAFE) - https://www.afedemy.eu/about-shafe/. (accessed 20 August. 2021).

SIFORAGE: Social Innovation on active and healthy ageing for sustainable economic growth, ID:321482.

Steels S (2015). Key characteristics of age-friendly cities and communities: a review. Cities. 47:45–52.

University of Cambridge. Inclusive Design Toolkit. *University of Cambridge*, undated. (accessed 25 August. 2021).

WE4AHA, EU project (GA No. 769705) to widening the support for large scale uptake of Digital Innovation for Active and Healthy Ageing, first release, May 2019.

WHO (2007a). Global age-friendly cities: a guide. Geneva: World Health Organization http://www.who.int/ageing/age_friendly_cities_guide/en/, (accessed 25 August 2021).

WHO (2018), Global Network of Age-Friendly Cities and Communities - https://www.who.int/ageing/age-friendly-environments/en/ (accessed 25 August 2021).

WHO (2020) Ageing: Healthy ageing and functional ability. Available at: https://www.who.int/westernpacific/news/q-a-detail/ageing-healthy-ageing-and-functional-ability (accessed 25 August 2021)

WHO (2018) The Global Network for Age-friendly Cities and Communities. Looking back over the last decade, looking forward to the next.

# Transformation of city area in post-transition period in Skopje

**Mihajlo Zinoski**

**Marija Djidrova**

Faculty of Architecture, 'Ss Cyril and Methodius' University in Skopje, Macedonia
miki.zino@gmail.com

## Abstract

In the period of transition from socialist toward pluralistic democratic society from 1990s, till today each Municipality in city of Skopje inherited responsibility of maintaining the public space and interest. As a capital city in post-socialist state system, the city of Skopje became subject of private interest of investment mainly in private commercial and residential buildings. In the period of transition and the process of denationalisation, the metropolitan territory, transformed in private ownership. The character of urban development in that constellation of ownership, mainly depends on organizational structure of local Municipality government and their ability to manage private interests through delivering plans. Following the result-based management of General urban plan, Municipalities experience enormous pressure of private investment interest in residential and commercial buildings and put the public interest aside. Considering the public interest, only reliable method of transparent process of legitimise the urban development left is public debate between academia, local authorities, citizens and stakeholders. The most important tool of renewal and social sustainability become the public buildings formerly known as buildings of societal standard. Since the local Municipalities deals with private-public partnership considering the building permission, there is a need of revision of program, content and process of contemporary management of building today. With the purpose of improving the quality of life of residents, students' needs and the productivity of involved stakeholders, this study investigate the urban Facility Management (FM) of synchronizations the processes within public and private sectors' interest. The main purpose of this study is establishing interaction between academic research methods and Municipality as local government in supporting efficiently public services that it serves and improve Social sustainability standard by investing in buildings of public interest. The purpose of survey in the study is recognition of students' proximity needs and optimisation of their transport, amenities and social life during their study cycle in the capital. Through participation of students in the survey this study will investigate complementary functions between student needs and stakeholders' interest and recommend sustainable program of their integration. From the other side, by obligation of paying taxes citizens participate in state budget and should be involved in these transformative processes also. To become their real representatives local authorities express willingness to manage the municipality problems on a local scale according the global societal and urban transformations toward resilient cities. This

paper presents research methods of urban development processes. To widen the scope of Participatory design process, it was realised that urban Facility Management (FM) is subliminal method of legal procedures, participation and architectural design of social significance. This study research different Stakeholders' interest, usually opposed each other, presuming complementary program as subject of survey method. Survey as a method of detection the participant's perception of problem should express is there any significantly different in research process. Complementary with the community participation, a social study method of survey is introduce to gain information about the relationship between the dependent and independent variables in this research. The analysis should present is there any significant differences between groups and help the hypothesis in contribution of proposing complementary program of sustainable integration in planning process.

Keywords: societal standard, urban facility management, complementary functions, participatory design.

## Introduction

The great idea of modernity from the past, in the capital city of Skopje today, is resembled in buildings from the period of socialist modernism. The buildings such as main postal office, university library, Macedonian academy of science and art, Macedonian radio and television and student dormitory "Goce Delcev", become icons of "communal building of the modernistic type". They were defined as "social standard" for generations, even today they remain as a model of communal/social coexistence for past, present and future generations.

After the dissolution of socialism in Eastern Europe countries, capitalism arrived. Macedonia, much like the rest of the Eastern Europe, transitioned to a life of fast changing. Modernistic buildings from the past century become "utopian" rather than "experimental", unable to realise consumers' interest anymore (Kolganov, 2020). Quality of materials, building standards, and creativity were replaced by the mass-production of cheap building materials designed to last only a few seasons and communal standards were replaced by commercial benefits. Instead of "transition" society rather "transforms" from socialism toward neo liberal market putting our consumerist choices into perspective of capitalism.

*Figure 8. Macedonian academy of science and art 1976 - Boris Chipan, architect*

*Figure 9. Youth and cultural centre 1970-1972 - Makedonijaproekt, Skopje*

*Figure 10. Macedonian radio and television tower 1983 - Kiril Acevski, architect*

*Figure 11. Central telecommunication building and postal office 1968-1972 - Janko Konstantinovski, architect*

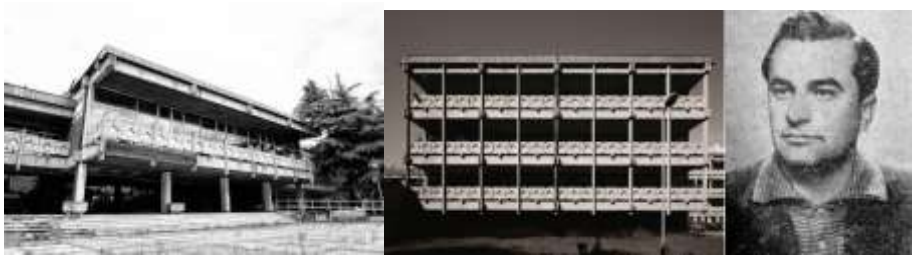


*Figure 12. Peoples and University library "St. Kliment Ohridski" 1971 - Petar Mulickovski, architect*

*Figure 13. Student dormitory "Goce Delchev" 1969 - Georgi Konstantinovski, architect*

**Theoretical approach in the research**

In that period of transition, in the past 30 years, and the process of denationalisation, the metropolitan territory transformed in private ownership. The character of urban development in that constellation of ownership, mainly depends on organizational structure of local Municipality government and their ability to manage private interests through delivering plans.

Following the result-based management in the process of creating General Urban Plan, and private investment interest mainly in residential and commercial buildings, Municipalities experience enormous pressure during developing Detail Urban Plans and put the public interest aside. Public buildings of social and cultural interest are left neglected and usually refurbished as existing one.

Considering the public interest, the only reliable method of transparent process of legitimising the urban development left is public debate between academia, local authorities, citizens and stakeholders.

The most important aspect for sustainability of Macedonian society became the renewal of public buildings formerly known as buildings of social standard. Since the local Municipalities deals with private-public partnership considering the building regulation and legislation, there is a need of program revision, content and process of contemporary management of building.

The main purpose of this study is to introduce research method of establishing interaction between academic research methods and Municipality as local government in efficiently supporting the public services that it serves and improve social sustainability standard by investing in buildings of public interest.

With the purpose of improving the quality of life of residents, students' needs and the productivity of involved stakeholders, this study investigates the urban Facility Management (FM) of synchronizations the processes within public and private sectors' interest.

The purpose of survey in the study is recognition of students' proximity needs and optimisation of their transport, amenities and social life during their study cycle in the capital city of Skopje. Through participation of students in the survey this study

will investigate *complementary functions* between students' need and stakeholders' interest and recommend sustainable program of their integration.

From the other side, by obligation of paying taxes citizens participate in state budget and should be involved in these transformative processes also. To become their real representatives local authorities express willingness to manage the municipality problems on a local scale according the global societal and urban transformations toward resilient cities frontier.

The problems of Result-Based Management (RBM)

This paper presents research methods of urban development processes. To widen the scope of Participatory design process, it was realised that urban Facility Management (FM) is a subliminal method of legal procedures, participation and architectural design with social significance (Temeljotov Salaj and Lindkvist, 2021).

Stakeholder such as public administration, as a party in participatory processes usually narrows their involvement only on ordering planning documentation and issuing building permission according to the law. Their contribution in organizational development uses a somewhat narrow range of methods of planning, facilitating and managing projects.

These methods, especially in the public sector involve managing for results formally known as Result-Based Management (RBM). This method begins with a setting, expectations that reflect common goals and specific objectives. Then, activities are designed and managed to achieve the expected results (Chevalier and Buckles, 2008).

Beside different Stakeholders' interest, usually opposed to others, this study research *complementary program* that supports students' needs during their academic life in the dormitory.

To introduce Planning procedure during the process of dedication certain location (in corelation of student residential needs) in planning process, a survey method is introduced as presumption of facilitating the public interest.

New approach established in participatory action research should acquire field research and new concepts and practices to improve evidence-based research. This approach tends to marginalize it from mainstream learning and academic research institutions and from public policy-making processes (Chevalier and Buckles, 2008).

Process Management (PM) is method of an approach to planning that can be used in complex, unpredictable situations common in the fields of development and social change. In the transitional society's transformation of the properties of the land and instate migration is common situation (Chevalier and Buckles, 2008).

What is complementary function (program):

*According to the document for "codes of urban planning" complementary functions (program) signifies activities which are held as supplement for functional completion and realisation of primary function (program) of the building with different (secondary) primary function (program) with the aim of improving the quality which occurs without changing the character and in particular cases enables realization and use of primary function (program).*

**Methodological approach in the research**

Survey as a method of detection the participants' perception of problem, should express if there are any significantly differences in the research processes. Complementary with the community participation, a social study method of survey is introduced to gain information about the relationship between the dependent and independent variables in this research.

The analysis should present if there are any significant differences between target groups and help the hypothesis in contribution of proposing complementary functions (program) of sustainable integration in planning process.

The purpose of the survey is the recognition of the students' proximity needs and optimization of their transport, amenities and social life during their study cycle in the capital city of Skopje.

As such the survey consists of three groups of questions, each associated respectively with transportation, social life needs and facilities and complementary and compatible programs and functions. The following participants are students of various study years, and part of the Architecture faculty – Skopje.

The subject of the first group of questions is to analyze the means of transportation students use to commute between their dwellings and faculty facilities, as well as the time frame within they do so. This determines the factor of satisfaction with the already available public / private / biking / on foot transportation and the correlation of the chosen type with the proximity of amenities, duration of the commuting, efficiency and costs.

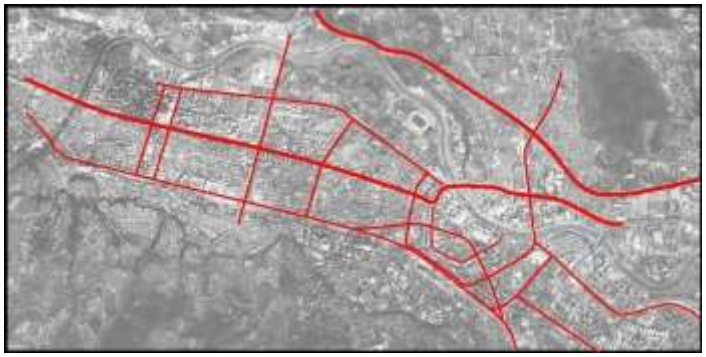


*Figure 14. Street system plan*

The next, second group of questions focuses on the students' standpoint of the necessity of public spaces and public buildings within the proximity to the faculty facilities.

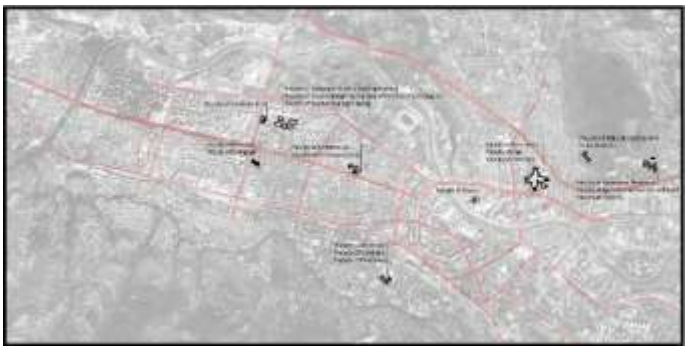


*Figure 15. Faculties part of the "Ss. Cyril and Methodius" University in Skopje*

The final, third part of the survey investigates the use of complementary function (program) as activities which enrich the functionality of the existing spaces without diminishing their character, and compatible programs providing dynamic, functional and structural coexistence between copious amount of activities and occupations. The students are asked to individually suggest few out of many said programs and determine their importance and influence when surrounding a faculty campus / facilities.

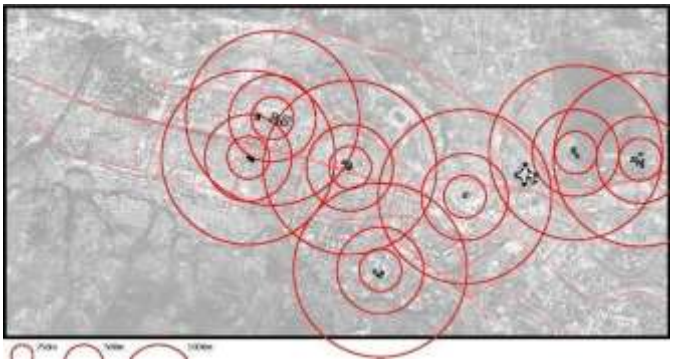


*Figure 16. Accessibility in proportion to proximity*

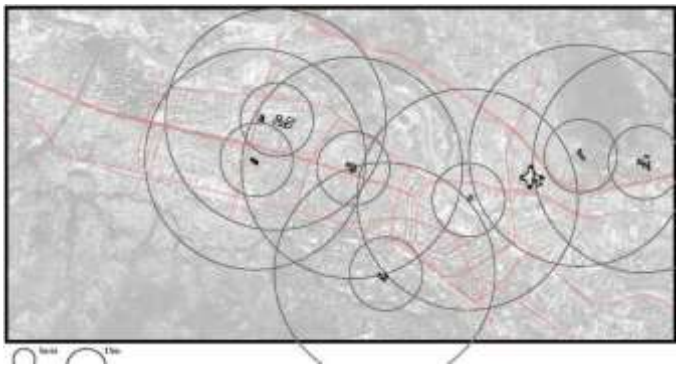


*Figure 17. Accessibility in proportion to time*

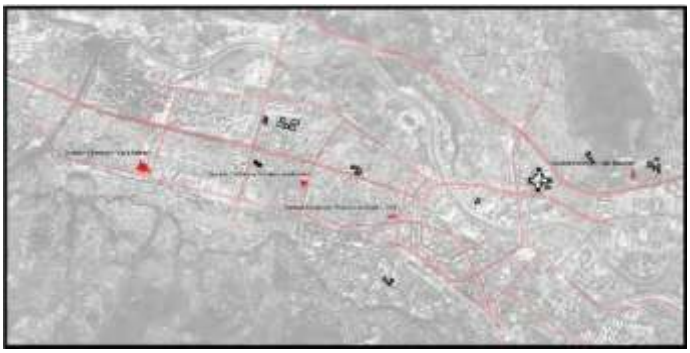


*Figure 18. Student dorms in Skopje*

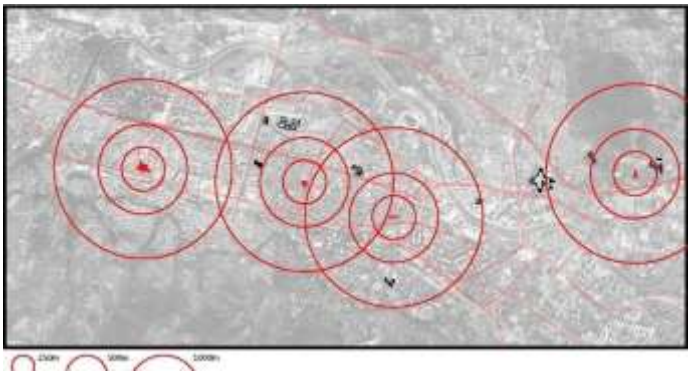


*Figure 19. Accessibility in proportion to proximity*

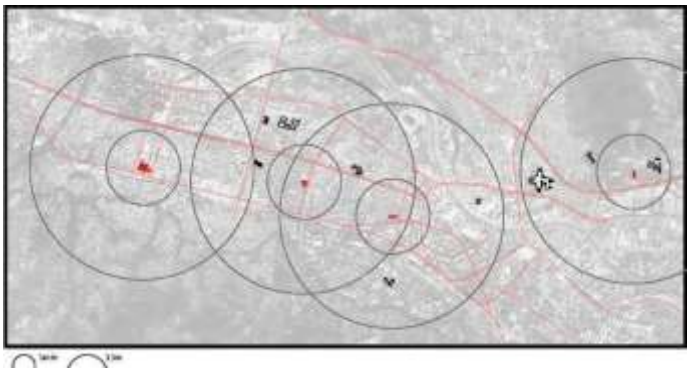


*Figure 20. Accessibility in proportion to time*

The survey generally presented the following responses:

- Majority of students live close to campus, thus do not rely heavily on any type of transport;
- Students in need of commute, depend on unreliable public transport or bikes;
- Students give great importance to presence and accessibility of public buildings and spaces such as libraries, theaters, healthcare, commercial and catering facilities, parks, sports and open spaces;
- Students rate the necessity of complementary and compatible programs such as “student services”, recreation, private, public, semi-private and commercial spaces quite high in significance.

The results from this survey showed that this group of participants, students, expressed similar positive perceptions of the necessity of complementary programs withing a faculty and student dorms, while on the other hand the means of commute heavily differentiate between participants varied by accessibility to facilities, traffic congestion and wealth.

*Table 1. One-way ANOVA analysis of variance regarding different social behaviour of participants*

| **Questions from the questionnaire** | **Sum of squares** | **Df** | **Mean square** | ***f*-ratio value** | ***p*- value significance** |
|---|---|---|---|---|---|
| Relation between type of transport and duration of commuting | 3152.2971[a,b,c] | 2 | 1576.148 | 8.80905 | 0.000472 |
| Public programs within walking distances | 17.464[a,b,c] | 4 | 4.366 | 3.82407 | 0.004918 |
| Open public programs within walking distances | 82.335[a,b,c] | 3 | 27.445 | 29.61799 | 0.00001 |
| Necessity of complementary programs | 15.855[a,b,c] | 3 | 5.285 | 16.18026 | 0.0001 |
| Necessity of private spaces, public spaces and semi-public spaces | *1.48*[b,c] | *2* | *0.74* | 3.84926 | 0.023474 |
| Evaluation pf complementary programs within and around a student dorm | *10.08*[a,b,c] | *2* | *5.04* | 9.20805 | 0.000171 |

Notes: [a] Difference is statistically significant at ($p < 0.01$); [b] difference is statistically significant at ($p < 0.05$);
[c] difference is statistically significant at ($p < 0.10$)

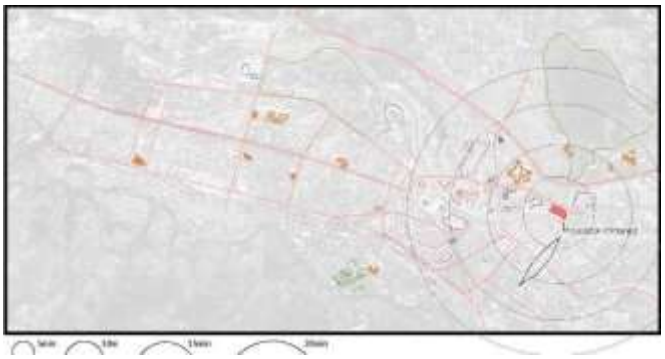


*Figure 21. Time/proximity of complementary programs surrounding the location*

Consisting of various complementary programs such as public buildings, cultural buildings, commercial and catering, sports and recreation, healthcare and transport, the location in question resumes with its primary functions without its qualities being diminished, rather being emphasized by said programs. The accessibility to these functions within walking distances, further validate the survey participants' stance on their presence and importance. Thus, the pattern language which represents the set of human interactions with built forms, resulted from development over time, culture and natural conditions, leave way for initiation of the design language (Alexander *et al*., 2010).

## References

Chevalier, J. M., Buckles, D.J., A Guide to Collaborative Inquiry and Social Engagement, New Delhi: Sage Publications, pp. 12, 2008

Alexander, C., Ishikawa, S. and Silverstein, M., 2010. *A pattern language*. New York: Oxford Univ. Pr.

Kolganov, A., 2020, “Saving Narkomfin: The modernist building at the heart of Soviet Union’s 1930s culture wars”, Calvet journal, vol. 22.

Temeljotov Salaj, A. and Lindkvist, C. (2021), Urban facility Management, *Facilities*, Vol. 39, no. 7/8, pp. 525-537 . https://doi.org/10.1108/F-06-2020-0078

# Green transformations of the main street in European capital cities

**Milena Vukmirović**

**Ena Miljkovic**

University of Belgrade - Faculty of Forestry,
Department of Landscape Architecture and Horticulture, Serbia
milena.vukmirovic@sfb.bg.ac.rs

**Abstract**

The purpose of this paper is to present and explain the concept of green transformation in the process of sustainable urban development, and in order to achieve activities related to climate change determined by the acceptance of international documents such as the Paris Agreement and the Sustainable Development Goals. Given that green transformation, together with digital, is a key determinant of Europe's future development, a number of cities are largely tracing their development paths based on this concept. Among them, Paris, London, Oslo, Vienna and Ljubljana are in the forefront and their experiences will be presented in this paper, following the structure of the framework of green transformation. Special attention of this research is placed on the transformation of main street of the city in order to create vibrant place which is supportive for healthy urban lifestyles.

Keywords: green transformation, sustainable urbane development, public place, main street transformation.

## Introduction

We live in an era called the Anthropocene (Crutzen & Stoermer, 2000), "a period in which human influence is the dominant source of change within ecosystems" (Berners-Lee, 2019, str. 2). The actions of people in different fields led to phenomena such as large fires, intensive hunting and agriculture, accelerated climate change, accumulation of plastics, invasion, but also mass extinction of certain species, which all contributed to changes that left a mark in the geological record of rocks (Ellis, 2018). From this perspective, the Anthropocene is considered an important argument in “calling for action for sustainability and responsible behaviour towards the environment (Crutzen & Stoermer, 2000; Ruddiman, Ellis, & Kaplan, 2015; Edwards, 2015). Accordingly, climate change is recognized as one of the key challenges of the future.

Cities contribute significantly to climate change but are also among the most endangered places in the world. Although they cover less than 2% of the total Earth's surface, "urban areas produce 71-76% of the global share of carbon dioxide

through energy consumption and a significant part of total greenhouse gas emissions” (UN Habitat, 2017). On the other hand, directly or indirectly, climate change has a negative impact on urban infrastructure, making access to basic urban services more difficult and reducing the quality of life in cities.

The alarming situation has influenced cities to join the first line of climate actions and orient themselves towards the green economy. The reason for this can be seen in the need for responsible management and care for the quality of everyday life of the city's residents, which helped "many officials and mayors understand that the city's commitment to a secure climate future has multiple benefits such as cleaner air, sustainable economy and energy efficiency" (CIFF, 2017). The relationship between urban areas and sustainability has attracted increasing attention on the international political and economic agenda over the last few decades. However, the role of cities in global economic development as well as social and environmental conditions have gained more attention recently (McCormick, Anderberg, Coenen, & Neij, 2013). Various initiatives of cities can be observed through their networking and implementation of specific urban actions such as C40, Covenant of Mayors and Mayor Adapt, within which they work together to encourage and implement activities at the local level, which would contribute to adapting and mitigating climate change and reducing temperatures and risks associated with the global by 1.5-2.0°C compared to the pre-industrial period (OECD, 2010).

At the national level, activities related to climate change are determined by the acceptance of international documents such as the Paris Agreement (UNFCCC, 2015) and Sustainable Development Goals, (United Nations, 2015). Adoption, implementation, and success in achieving the goals of these documents have led to social and academic interest in the concept of transformation, but also its view as a key concept in research on climate change and sustainability in recent years (Pelling, 2011; Kates, Travis, & Wilbanks, 2012; Feola, 2015; Patterson, et al., 2017; Amundsen & Hermansen, 2020; Scoones, Leach, & Newell, 2015). Underlying this shift in thinking is the realization that the challenges posed by climate change are so great that current, gradual approaches are insufficient (Amundsen & Hermansen, 2020). On the other hand, the urban environment is characterized by the presence of various processes of constant change, while transformation refers to a more significant or radical change in the type or quality of things. The situation in which "the greatest coincidence in the general definition of transformation is seen in the need for fundamental changes, and in relation to climate and development imperatives" (Maassen & Galvin, 2019) speaks in favour of the above. In the domain of urban systems (McCormick, Anderberg, Coenen, & Neij, 2013), there is talk of sustainable urban transformation that refers to the processes of structural transformation - multidimensional and radical change - that can effectively direct urban development towards ambitious sustainability goals.

Given the complexity of the issues related to defining the concept of transformation (Patterson, и други, 2017; Amundsen & Hermansen, 2020; Scoones, Leach, & Newell, 2015), the depth of necessary changes and how a situation that can be characterized as transformation occurs, the focus of the work is placed on the explanation and application of the concept of green transformation in the process of

sustainable urban development. The second part of the paper presents the components of green transformation divided into two groups - carriers of change and sustainable urban structure. The third part of the paper presents the result of the comparative analysis of the green transformation of the main streets in Paris, London, Vienna, and Ljubljana to look at the specifics of green urban transformation viewed as concrete interventions and activities that have the character of transformation.

Special attention is given to case studies of the main streets of the four European Capital cities, because of the importance and the character of this kind of open public spaces. The main street is much more than a place, but more a state of mind and a set of values (Kostof, 1987). Having in mind the above, the transformation of the main street of the capital will have a significant effect in relation to future urban practices and values, but also the quality of life of the citizens of that city. It is also considered that influential examples of the green transformation of renowned or major city streets are also broadening the appeal of this topic and represent a model for other public space interventions.

**Green transformation**

The green transformation can be best explained by the reference to the term "green shift", which is a "continuous, ongoing and unstoppable process of reducing greenhouse gas emissions and improving resource productivity in all sectors of society, thus creating new opportunities for value creation" (Amundsen & Hermansen, 2020). Although there are other domains of observation, sustainable development and the "green economy" are most prevalent in defining the framework of green transformations (Scoones, Leach, & Newell, 2015). Observed at the city level, green transformation is considered a type of urban transformation i.e., a system that emphasizes the need to use sustainable energy sources and green spaces to achieve a sustainable future of cities (Bostancı, 2015).

McCormick's research of sustainable transformations in the field of urban systems is based on the overlap of the concepts of sustainable urban transformation and green economy (McCormick, K., Neij, L., & Anderberg, S., 2012). If we look at the concept of sustainable urban transformation, we emphasize "the understanding of the city as a source of opportunities for sustainability, based on active cooperation among urban actors and the integration of different perspectives, scientific and professional bodies" (McCormick, K., Neij, L., & Anderberg, S., 2012). On the other hand, the green urban economy is understood as a process of realizing opportunities to improve the well-being of people and local natural resources, while reducing future costs, poverty, and environmental risks. Observed through the contribution and role of economic activities in achieving sustainable urban development, the green economy aims to recognize and measure the value of ecosystems and natural resources, as well as economic benefits in a broader perspective that includes human, environmental and economic capital. Given the views presented, sustainable urban transformation and the green economy are linked and can be understood as integrated concepts. Following the reflection on green transformation as an umbrella concept (Scoones, Leach, & Newell, 2015) that

can encompass a multitude of ways in which a city can be transformed, the framework for sustainable urban transformation has been improved (McCormick, K., Neij, L., & Anderberg, S., 2012). which includes two groups of components that interact with each other - agents of change and urban structure, as fields of action.

**Agents of change** encompasses three components: governance and planning, innovation and competitiveness, and lifestyle and consumption. Governance and planning encompass the processes of analysis and implementation of various strategies, which include effective planning strategies and integration of legislative documents. Special attention should be paid to providing an environment that will influence the empowerment, engagement, and cooperation of relevant urban actors. Comprehensively understood, innovation and green / clean technologies are considered necessary both for the development of the green economy and for strengthening and nurturing urban competitiveness at the global level. Lifestyle and consumption refer to processes that will aim to improve the socio-economic standard and cultural development, which will contribute to the quality of life of citizens with a special focus on creating an environment that will be a kind of support in achieving the vision of sustainable habits and lifestyles.

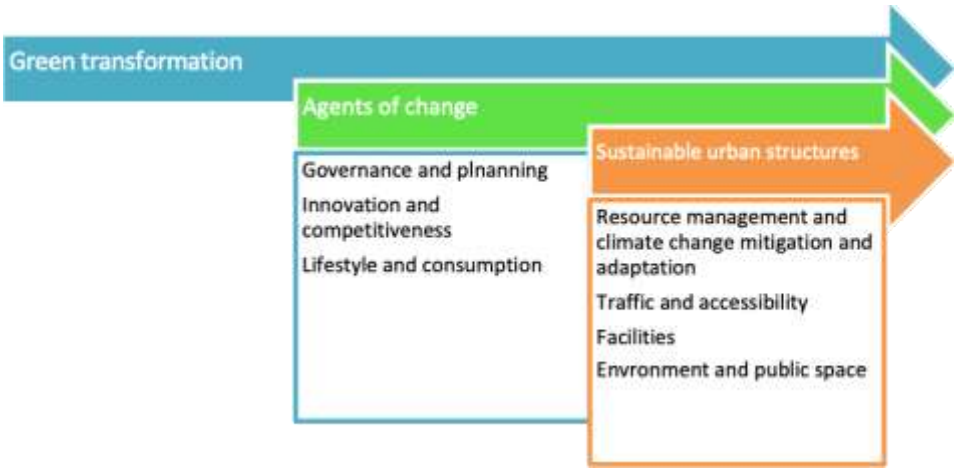



*Figure 22: Components of Green Transformation (McCormick, K., Neij, L., & Anderberg, S., 2012).*

**Sustainable urban structures** contain four components: resource management and climate change mitigation and adaptation, traffic and accessibility, facilities, and environment and public spaces. The first component indicates the need for urban systems to be multi-functional and to be able to integrate environmental, economic, recreational and aesthetic values (McCormick, K., Neij, L., & Anderberg, S., 2012). Transport and accessibility include structures that contribute to reducing pollution, increasing road safety, but also defining various measures and monitoring their effects. The component covering the domain of facilities and construction should respond to the need to create affordable, attractive, efficient, comfortable and sustainable facilities, which will enable its users to influence climate change mitigation, use renewable energy, reduce excessive material consumption and use them in reuse, as well as to adapt to the changing reality of the environment. Urban

development planning, as the fourth component, focuses on the spatial environment in terms of revitalization of city centres, neighbourhoods, urban public spaces and on connecting fragmented urban landscapes to develop a continuous network that contributes to the vitality and quality of urban experience. In this way, special emphasis is placed on the development of green infrastructure and the preservation of existing and the creation and integration of new green and blue structures, which would result in the creation of a healthy environment that stimulates social interactions.

This framework of green transformations can help in understanding the political and economic nature of various initiatives launched in cities, to establish areas of action more clearly, their development effects, but also mutual influences. According to its characteristics, the green transformation, together with the digital one, represents a key determinant of the future development of Europe (European Green Digital Coalition, 2021). Some of the richest countries in Europe, have largely traced development paths based on green transformation while sharing the costs of the creation of common spaces which is already happening in European capitals. In accordance with that, the research puts the emphasis on the spatial-physical aspect, which includes the presentation of different fields of action, i.e., urban structures proposed within the main street transformation projects of the four capital cities to point out the specificity of these interventions and to identify their common elements

## Methods and materials

The research was conducted as part of the process of working on a master's thesis titled *The application of the concept of green transformation on King Milan Street in Belgrade* as part of the Master's studies in landscape architecture at the Chair of Landscape Architecture, Faculty of Forestry, University of Belgrade.

The first part of this research applied a case study method that included examples of Champs Elysees in Paris (France), Oxford Street in London (UK), Mariahilferstraße in Vienna (Austria) and Slovenska Street in Ljubljana (Slovenia). Selected examples of streets were analysed according to the previously established structure of elements that included topics of strategic framework, citizen participation in the process of defining transformation proposals, establishing a new traffic regime, green infrastructure and microclimatic characteristics, materialisation and urban equipment and network of open public urban spaces. The structure of the presentation of individual case studies enabled the implementation of a comparative analysis of the selected main streets. The results of the comparative analysis will be presented in this paper to highlight the recommendations and guidelines for the green transformation of the main city streets.

## Findings and results

### Strategic framework

Paris Climate Action Plan (Paris, 2018), adopted in 2018, aims to use 100% renewable energy by 2050. In that way, the concentration of carbon in the air will be

reduced and it will provide a healthier environment and a healthier life for the users of the space. In line with the planned activities of the Plan, the Vison for 2030 envisage Champs Elysees “as promenade which users will be able to walks along the historic boulevard in an atmosphere significantly improved by reducing traffic and with green, environmentally friendly, desirable and inclusive spaces" (Neira, 2021). The proposed transformation focuses on four operational priorities with measurable effects such as reducing the impact of urban mobilities, rethinking nature as an ecosystem, inventing new uses, and utilizing data (Philippe Chiambaretta Architect, 2021). It will “draw on the symbolic power of the Champs-Élysées to bring onboard the best talent in the country, from both the public and private sectors, and to turn the avenue into an urban demonstrator of a sustainable, desirable and inclusive city” (Philippe Chiambaretta Architect, 2021).

In May 2018, London Mayor Sadiq Khan released London’s first integrated environmental strategy (Figure 2), covering air quality, green infrastructure, climate change mitigation and energy, waste, adaptation, noise and a low-carbon circular economy.

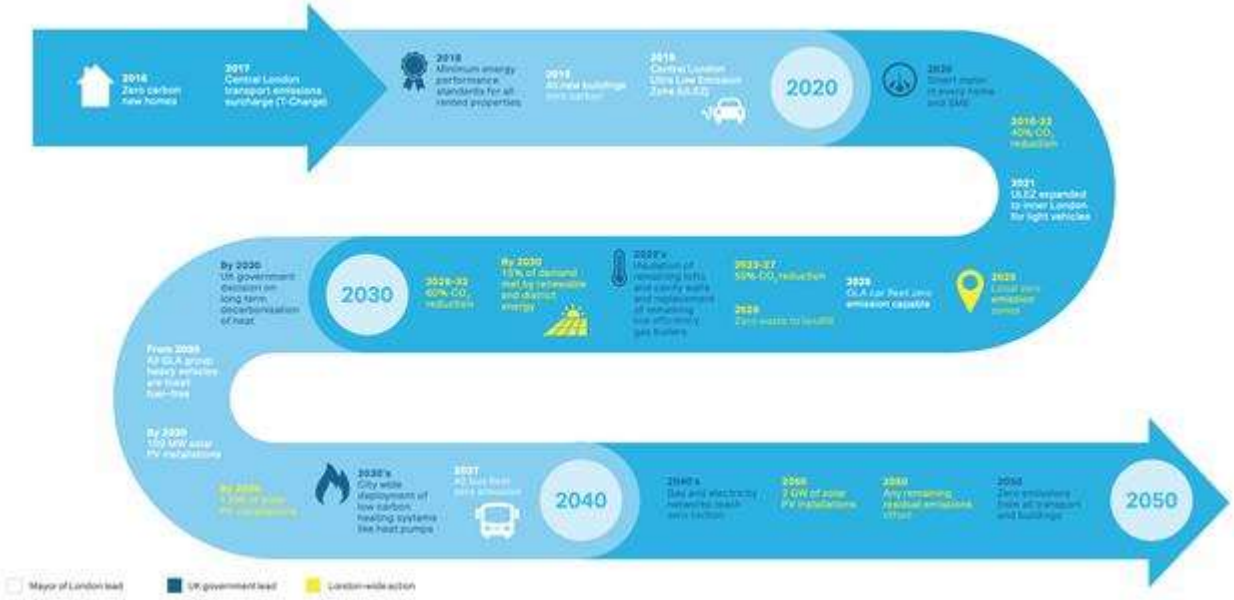



*Figure 23: London Environment Strategy (Great London Authority, 2018)*

This plan is compatible with the Paris Agreement’s ambition of limiting global warming to 1.5°C and commits London to becoming a zero-carbon city by 2050. In line with that, Oxford Street transformation project is driven by the need to efficiently, in a short period of time, create an inclusive space that will attract all user groups. The basic aspects of the space that require improvement were air quality, quality and functioning of the street and the quantity and intensity of motor traffic. "The project gathered a lot of information about the environmental conditions in the district, which was used to enable rapid progress in the development of the Oxford Street County Strategy" (City of Westminster, 2019).

Considered as the largest and one of the most popular shopping streets of Vienna, Mariahilferstraße is successfully transformed to increase the number of pedestrian

and to include bicycle traffic within it. The street also obtained the added value of spaces such as green areas, relaxation areas, garden cafes that attract more users and provide a better living environment. Mentioned transformation is also in line with the Smart City Framework Strategy aimed to decrease the number of cars to 20% in 2025 by changing the road structure (Vienncouver, 2015).

Several planning initiatives has been effectively implemented in Ljubljana in last decade following the mail Vision for 2025 (Mestna občina Ljubljana, 2018). Accordingly, one of the most important and impressive measures for establishing a quality public city space is the transformation of part of Slovenska cesta into a space intended for pedestrians, cyclists, and city bus users, creating a common street where all users equally participate in city life (Koželj, 2017; Dekleva Gregoric Architects, 2019)

Public participation and citizen engagement

The Committee of Champs-Élysées, an organization that brings together the boulevard's main public and private stakeholders, invited Philippe Chiambaretta Architect (PCA) to engage in an initial study, Re-enchanting the Champs-Élysées, which was presented at a conference in April 2019. The authors determined that the transformation need to emphasize the French lifestyle and to enrich the street with culture and health instead of shopping malls and concrete, since "the boulevard is rejected by Parisians because of over tourism, traffic, pollution, overconsumption, impervious surfaces" (O'Sullivan, 2021; Philippe Chiambaretta Architect, 2021).

The public and citizen engagement in the proposal development was evident resulting in several guidelines and suggestions that were focus of the project. The public's position is that air quality, management, the quality of the street and its surrounding area, and traffic management are key aspects that need to be worked on to improve the space and improve the quality of the environment. It is essential that the district be safe and accessible to all users. To achieve that, it is necessary to increase the number of pedestrian crossings and the area of pedestrian paths, considering that pedestrians are the most frequent users of space. The public believes that it is necessary to reduce street congestion to improve air quality, reduce travel time from one place to another and improve the quality of the environment. It was also said that it is necessary to make the space so that more people want to spend time in it, and that this can be achieved by strengthening the historical and cultural character of the street i.e., introducing new cultural programs and setting up art installations and maintaining the ambience characteristic of London (City of Westminster, 2019).

*Figure 24: Vienna. Participation process on Mariahilferstraße transformation (Bureau B+B, 2015)*

The participatory program included combination of traditional and contemporary/alternative tools (Pogačar & Šenk, 2018) accompanied with design competition, an information campaign as well as public participation through a special website, newsletter, expert round tables, discussions, resident surveys, and feedback boxes on the Mariahilferstraße Transformation Project, where citizens were involved in the planning process by presenting their wishes and ideas. For a period of one year, the street was closed to traffic and equipped with new furniture so that users could test the new, planned ambience of the street, which they did. A long table (see Figure 3) with the design of the transformation project was placed in the middle of the street, where citizens could write comments and wishes. After intensive reactions to interim design period, the final decision was provided by a public referendum in 2014.

In Ljubljana, certain traditional tools, including spatial vision and the spatial strategy in the first phase and the spatial plan and traffic policy in the second, have been complemented by several interventions proposed by different initiatives and actors (Pogačar & Šenk, 2018). These included street art, exhibitions, art installations, temporary events, and other urban interventions designated as interim design projects and demonstration projects. In addition to a special website for citizen initiatives, several presentations, discussions, and round tables as well as an extended workshop/competition were held, leading to the renovation with its new and specific character, which also received professional confirmation, with awards including a Mies van der Rohe 2017 award nomination.

Traffic organisation

The proposed transformation of the street will turn the Champs Elysees into a pleasant street that offers pedestrians a place to stay, as well as some other streets in Paris. Narrowing of the road, twice as wide sidewalks are obtained, and the

introduction of bicycle lanes is also planned. The idea is to create a common street for all users, where pedestrians and motor vehicles will share the same road. This also indicates a reduction in speed for all vehicles, while car lanes will be reduced to four even around the Triumphal Arch, a multi-lane intersection that connects all the roads that connect and allow the flow of north-western Paris (O'Sullivan, 2021).

The Oxford Street development strategy (City of Westminster, 2019) envisages the expansion of pedestrian paths to create a safe and pleasant space for pedestrians who make up the largest percentage of space users. To make this possible, it has been proposed to remove bus stops and islands between lanes. The idea is to simplify the urban layout of the street to reduce the space intended for motor traffic.

Mariahilferstraße is recognised as the Europe's longest shared space street. In line with that concept, the street is characterised with the space is intended for common use, no separation of sidewalks and roads with curbs, no traffic signs, that cars can park only for a short period of time in the parking space, that cars have no right to interfere with pedestrians and bicycles, that motor vehicles are allowed to move at a maximum speed of 20 km / h and that pedestrians are allowed to use the whole street, but not to interfere with car traffic. All this provides greater safety for users and calming of traffic on the street, which leads to a reduction in noise and air pollution, and a better and healthier environment for users (Vienncouver 2015).

*Figure 25: Ljubljana. Traffic organization of Slovenska street (EUmiesaward, 2017). Photo by Miran Kambic*

Slovenska Street is designed as a shared space where pedestrians, cyclists and public transport have an equal right to use the street. The street, dominated by 4-lane traffic, has been converted into a street where only public transport is available (EUmiesaward, 2017; Mestna občina Ljubljana, 2018). The height differences between the sidewalks and the pavement have been almost removed and a space has been created that is accessible to everyone.

Green infrastructure and microclimate character

According to the concept of the green infrastructure of the city of Paris, the creation of a "tunnel" of branched canopy in tree lines along the entire street is planned on the Champs Elysees. Redesign of the living ecosystem of the street will act as an air purifier, absorbing carbon dioxide, minimising dust, increasing rainwater infiltration, cooling the air via evaporisation, increasing the amount of shade, and restoring wildlife habitat to increase biodiversity (Minchin, 2021).

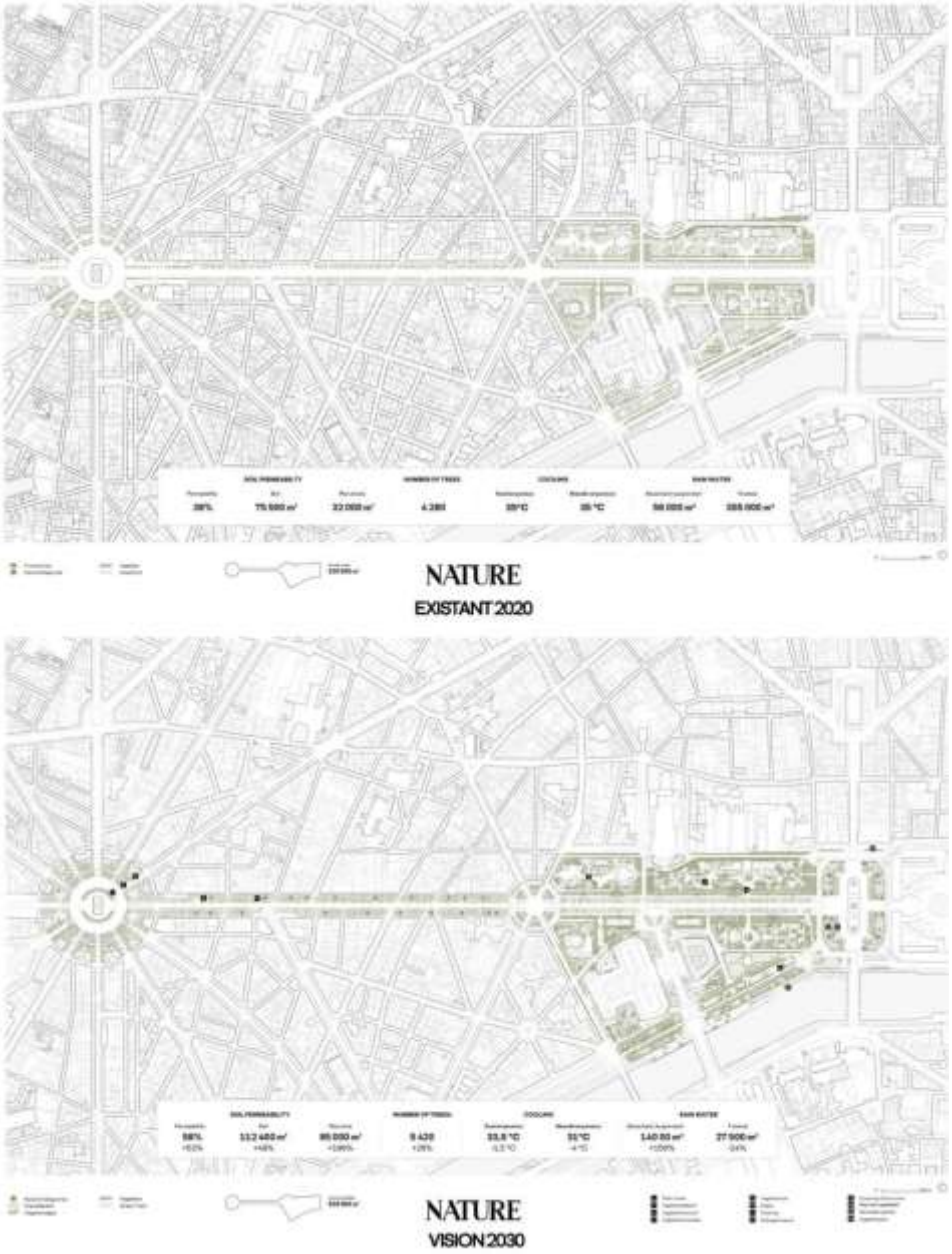



*Figure 26: Paris. Rehinging nature as an ecosystem (Philippe Chiambaretta Architect, 2021)*

The transformation plan includes the assessment of the potential of each street for landscaping and introduction of green areas, preservation of plant material during

street transformation, creation of green spaces that will improve the quality of space and character of the street by providing sun protection, revitalizing more plant species, creating a better connection of green spaces, creating a green corridor that will connect Oxford Street with the surrounding area and creating alternative types of landscaping such as green walls and roofs (City of Westminster, 2019).

The 2015 concept "Open Green Spaces: Open Space Sharing", which is part of Vienna's urban development plan until 2025, builds on Vienna's open space network to improve the link between the city's green spaces and provide easier access to citizens. It was created for the maintenance and development of high-quality green and open spaces in Vienna (Tóth, Damyanovic & Reinwald, 2019). When creating the Mariahilferstraße Transformation Project, all existing healthy trees were provided for retention, to preserve a quality and healthy environment (Bureau B+B).

A new stretch of black ash trees (autochthonous Slovenian species) has been planted on the east side of the Slovenska Street, which is illuminated by the afternoon western sun. This type of tree, sufficiently resistant to the often-difficult urban environment for plants, will give a special atmosphere in the spring, enhanced with white flowers, and in the fall with yellow leaves. In this way, Slovenska Street relates to several protected natural areas such as: the river Ljubljanica, Grajski grič, Kongresni trg, Tivoli Park, etc.

Open public space network

Poor connection of pedestrian areas is exactly what needs to be solved by the Champs Elysees transformation project (Figure 6). The plan is to create a wider and more attractive pedestrian space that will connect the surrounding streets with the Champs Elysees, as well as to introduce bicycle paths. The area will be reshaped with tree seedlings, and it is also planned to create a connection between the Champs Elysees and the river Seine by connecting these two areas, introducing new facilities and renovating the riverbank (Grignard, 2019; O'Sullivan, 2021).

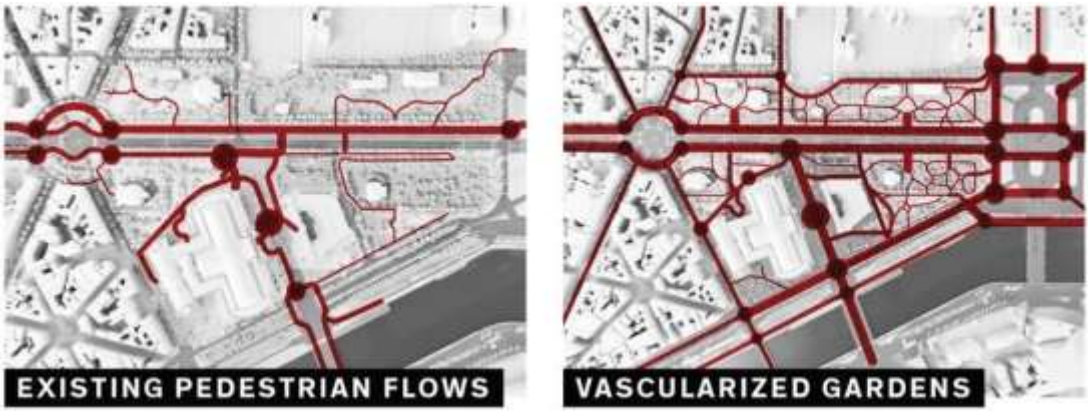



*Figure 27: Paris. Pedestrian network before and after the transformation (Grignard, 2019)*

Oxford Street, with its location, provides good connections to nearby areas such as Manchester, Portman and Grosvenor Squares. It is planned to connect all surrounding destinations with Oxford Street, providing quality space and a wide network of open urban spaces.

Shared space concept implemented in Mariahilferstraße transformation makes it easier for people to cross from one side of the street to the other and thus use the potential of the space. The connectivity of the space is then greater, and the space is more accessible and pleasant to use (Vienncouver, 2015).

The transformation of Slovenska Street has contributed to the further expansion and improvement of the network of open urban spaces in the central part of Ljubljana, formed along the banks of the Ljubljanica River.

Materialisation and urban equipment

New paving is planned along the entire street, as well as the introduction of green spaces with water elements in the middle. The cobblestones will be replaced with a material that does not make much noise due to use and which heats up to a lesser extent. This will reduce the effect of the heat island in the city, noise pollution will be greatly reduced, and the aesthetic effect will be increased (Grignard, 2019; O'Sullivan, 2021). The new, modern furniture will be placed so that it marks the border between the sidewalk and the roadway. The content and function of the space will differ in sunny places and places in the shade.

It is planned to design a unique design of furniture and a combination of different paving that will be characteristic of Oxford Street, while differing in the zones of the street whose character and function will be accompanied by an adequate design. Significant and unique destinations along the street should stand out with unique paving compared to the rest of the street (City of Westminster, 2019). It is necessary that the streets, which connect to the main one, be paved so that a gradual transition from one to the other is achieved.

"The sidewalk and street furniture are made of granite from a local quarry to fit the public space into the look of the buildings" (Bureau B+B, 2015). Street lighting is designed to drown in the appearance of the surrounding buildings and thus do not represent a dominant in space. The materials that are dominant in the space are grey stone and wood (Vienncouver, 2015) while the street is paved with its entire surface at the same level. Subtle lines in the paving separate the slow lanes along the objects from the fast lane in the middle.

*Figure 28: Vienna. Materialisation and urban equipment of Mariahilferstraße (Bureau B+B)*

Design concept of the Slovenska Street has been followed clear horizontal and vertical elements. The paving of the footpaths is designed in two colours and two shapes of stone. In this way, geometric shapes are created that together form the

"decorative carpet" of the street. Paving the pavement consists of concrete slabs of larger dimensions, which follow a triangular shape (Matić, 2015; EUmiesaward, 2017). The transformation project envisages the installation of hanging lighting spots ensuring the safety of the street during the night. New public transport stops with canopies above the road have also been set up (Mestna občina Ljubljana, 2018).

## Conclusions and recommendations

The results of the conducted comparative analysis of the specifics of the green transformations of the main streets of the four European capitals are clearly presented in Table 1 to notice their common characteristics.

*Table 1: Specifics of the green transformation of the main streets in Paris, London, Vienna and Ljubljana*

| | **Paris** | **London** | **Vienna** | **Ljubljana** |
|---|---|---|---|---|
| **Strategic framework** | Paris Climate Action Plan<br>Paris Respire Champs-Élysées. A vision for 2030 | London Environment Strategy<br>Oxford Street District. Place Strategy and Delivery Plan. | Smart City Wien framework strategy<br>Open Green Spaces: Open Space Sharing concept | The Vision of Ljubljana 2025<br>Sustainable urban mobility plan 2012<br>City Centre Pedestrianisation Plan 2007-2012 |
| **Public participation** | Different actors are involved in the development process of the plan, leading by the Committee Champs-Élysées | Citizens are engaged to give guidelines of the future transformation of the street. | Combination of traditional and contemporary tools accompanied with design competition, an information campaign as well as public participation and a public referendum in 2014. | Traditional tools complemented by several interventions proposed by different initiatives and actors. |
| **Traffic organisation** | Traffic lane reduction by half as sidewalks are expanded for pedestrians, and an abundance of trees and greenery. | A new urban layout of the street to reduce the space intended for motor traffic | Narrowing of the driving range<br>Sidewalk widening<br>The former road surface has been raised to the level of the sidewalks | Slovenska Street is designed as a common space where pedestrians, cyclists and public transport have an equal right to use the street. |
| **Green infrastructure** | Nature will partly replace costly | Creating a green corridor that will | The existing trees are integrated into | Planting of linear greenery of |

| | | | | |
|---|---|---|---|---|
| **and microclimate** | and polluting infrastructure. Redesign of the living ecosystem of the street. | connect Oxford Street with the surrounding green spaces | the new design in accordance with the adopted concept of maintenance and development of high-quality green and open spaces in Vienna | autochthonous species to establish more pleasant microclimatic conditions. |
| **Open public space network** | Improving the network of open public spaces by creating “planted living rooms” for lounging and relaxing in line with creating more space for outdoor cafes, children’s playground, and sport activities. | Connecting all surrounding destinations by providing quality space and a wide network of open urban spaces. | The street is considered as an integral element of the public space network as well as a main connector of the city centre and its western part. | This transformation contributed to further development of the public space network in the central area. |
| **Materialisation and urban equipment** | Pavement that will be more permeable and which won’t make noise pollution. | Unique design of furniture and a combination of different paving that will be characteristic of Oxford Street, while differing in the zones whose character and function. | Conversion of Mariahilferstraße into a meeting zone (concrete stone paving) and a pedestrian zone (natural stone paving). Carefully designed different elements of urban equipment. | Decorative stone carpet for pedestrians and concrete base for public transport vehicles. Urban equipment is organised to create and impression of the public living room. |

Considering the observed similarities of the selected case studies it can be concluded that green transformation of the main street must cover following recommendations:

- Existence of a strategic document defining long-term sustainable goals, with a clear action plan and the effects of its implementation
- Public participation designed in such a way as to truly enable citizens to express their needs and make suggestions for future transformation
- It could be combination of traditional and contemporary participation tools
- A new urban layout of the street to reduce the space intended for motor traffic in favour of sustainable modalities of transport
- Establishment of the city green infrastructure, defined by the strategical documents and existence and design of public spaces considered as an integral element in it.

- Connecting all surrounding destinations by providing quality space and a wide network of open urban spaces.
- Creating more space for outdoor cafes, children's playground, and sport activities
- Public space design that allows intuitive orientation and movement
- Functional and informative pavement
- Local and natural materials to fit the public space into the look of the buildings – existing environment.

## References


Amundsen, H., & Hermansen, E. A. (2020). Green transformation is a boundary object: An analysis of conceptualisation of transformation in Norwegian primary industries. *EPE: Nature and Space*, 1-22.

Berners-Lee, M. (2019). *There Is No Planet B. A Handbook for the Make or Break Years.* Cambridge, New York, NY: Cambridge University Press.

Bigsee. (2018). *Slovenska Boulevard*. Accessed onbigsee: https://bigsee.eu/slovenska-boulevard/

Bostancı, S. H. (2015). Sustainability Strategies and Projects of Turkish Municipalities. In K. D. Thomas (Ed.), *Handbook of Research on Sustainable Development and Economics* (pp. 56-71). Hershey: IGI Publishing.

Bureau B+B. (2015). *Mariahilfer Strasse, Vienna*. Accessed onbplusb.nl: https://bplusb.nl/en/work/mariahilferstrasse/

CIFF. (2017, March 24). *Cities in the Frontline. Planning for Low-Carbon Future.* Retrieved September 12, 2019, from Children's Investment Fund Foundation: https://ciff.org/impact/cities-frontline/

City of Ljubljana. (2016). *Transforming mobility - great challenge and the biggest change*. Accessed onec.europa: https://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2014/07/Ljubljana_2016_Pres-2low.pdf

City of Westminster. (2019). *Oxford Street District. Place Strategy and Delivery Plan.* Westminster: Publica.

Crutzen, P. J., & Stoermer, E. F. (2000). The "Anthropocene". *Global Change Newsletter*(41), 17-18.

Dekleva Gregoric Architects. (2019). *Slovenska Street pedestrianisation*. Accessed ondekleva-gregoric: https://www.dekleva-gregoric.com/slovenska-street

Edwards, L. E. (2015, November 30). *What Is the Anthropocene?* Retrieved September 12, 2019, from EOS. Earth & Space Scinece News: https://eos.org/opinions/what-is-the-anthropocene

Ellis, E. C. (2018). *Anthropocene: A Very Short Introduction.* Oxford: Oxford University Press.

EUmiesaward. (2017). *Slovenska Street Renovation. Slovenska Street pedestrianisation*. Accessed onmiesarch: https://miesarch.com/work/3145

European Green Digital Coalition. (2021). *A Green and Digital Transformation of the EU Declaration.* Retrieved 2021, from file:///C:/Users/Ena/Downloads/A_Green_and_Digital_Transformation_of_the_EU_Declaration.pdf

Feola, G. (2015). Societal transformation in response to global environmental change: A review of emerging concepts. *Ambio*(44), 376-390.

Great London Authority. (2018). *London Environment Strategy.* London: Great London Authority.

Grignard, A. (2019). *Re-enchanting the Champs-Élysées.* Retrieved 2021, from mit media lab: https://www.media.mit.edu/posts/re-echanting-the-champs-elys-es/

Kates, R. W., Travis, W. R., & Wilbanks, T. J. (2012). Transformational adaptation when incremental adaptations to climate change are insufficient. *Proceedings of the National Academy of Sciences of the USA. 109 (19)*, pp. 7156-7161. NSA.

Kostof, S. (1987). *America by Design.* New York: Oxford Universty Press.

Koželj, J. (2017). *Slovenska cesta conversion.* Accessed onnacto: https://nacto.org/wp-content/uploads/2017/09/Ljubljana.pdf

Maassen, A., & Galvin, M. (2019). What Does Urban Transformation Look Like? Findings from a Global Prize Competition. *Sustainability*, 1-21.

Matić, B. (2015). *Slovenska Street*. Accessed onhttp://www.studiokristof.com/projects/slovenska/data.html

McCormick, K., Anderberg, S., Coenen, L., & Neij, L. (2013). Advancing Sustainable Urban Trans. *Journal of Cleaner Production*(50), 1-11.

McCormick, K., Neij, L., & Anderberg, S. (2012). Sustainable Urban Transformation and the Green Urban Economy. In Simpson, R., & Zimmermann, M. (Eds.), *The Economy of Green Cities: A World Compendium on the Green Urban Economy.* Berlin: Springer.

Mestna občina Ljubljana. (2018). *Slovenska cesta*. Accessed onljubljana: https://www.ljubljana.si/sl/moja-ljubljana/ljubljana-zate/projekti-mol/slovenska-cesta-4/

Minchin, J. (2021). *Champs-Élysées set for green transformation with traffic space reduced*. Accessed onintelligenttransport: https://www.intelligenttransport.com/transport-news/114554/champs-elysees-project/

Neira, J. (2021). *designboom*. Accessed onhttps://www.designboom.com/architecture/champs-elysees-plan-pca-stream-01-11-2021/

O'Sullivan, F. (2021). *A Green Transformation for the 'World's Most Beautiful Avenue'*. Accessed onbloomberg: https://www.bloomberg.com/news/features/2021-01-14/paris-dreams-of-a-calmer-greener-champs-elys-es

OECD. (2010). *Cities and Climate Change.* Paris: OECD Publishing.

Paris. (2018, 08 27). *Nouveau plan climat. 500 mesures pour la Ville de Paris*. Accessed onParis: https://www.paris.fr/pages/nouveau-plan-climat-500-mesures-pour-la-ville-de-paris-5252

Patterson, J., Schulz, K., Vervoort, J., van der Hel, S., Widerberg, O., Adler, C., Barau, A. (2017). Exploring the governance and politics of transformations towards sustainability. *Environmental Innovation and Societal Transitions*(24), 1-16.

Pelling, M. (2011). *Adaptation to Climate Change: From Resilience to Transformation.* London and New York: Routledge.

Philippe Chiambaretta Architect. (2021). *The "Champs-Élysées - history & perspectives" Study*. Accessed onpca-stream.com: https://www.pca-stream.com/en/projects/champs-elysees-study-48

Pichler-Milanovič, N., & Foški, M. (2015). Green Infrastructure and Urban Revitalisation in Central Europe: Meeting Environmental and Spatial Challenges in the Inner City of Ljubljana, Slovenia. *Urbani izziv*, 50-64.

Pogačar, K., & Šenk, P. (2018). Alternative approaches and tools for the transformation of streetscapes: direct physical interventions and different modes of participation. *Prostor, 26*(1 [55]), 170-183.

Ruddiman, W., Ellis, E., & Kaplan, J. (2015). Geology. Defining the epoch we live in. *Science*(38-9), 348.

Scoones, I., Leach, M., & Newell, P. (Eds.). (2015). *The Politics of Green Transformation.* London and New York: Routledge.

Tóth, A., Damyanovic, D., & Reinwald, F. (2019). *Planning and Implementation of Green Infrastructure in Austrian Cities.* Vienna, Austria: University of Natural Resources and Life Sciences, Vienna.

UN Habitat. (2017, July 10). *Climate change.* Retrieved September 12, 2019, from UN Habitat. For a Better Urban Future: http://unhabitat.org/urban-themes/climate-change/

UNFCCC. (2015). *Adoption of the Paris Agreement.* United Nations Framework Convention on Climate Change.

United Nations. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development.* New York: UN.

Vienncouver. (2015). *A Tale of Two Cities (1): Vienna's Mariahilferstraße combines Pedestrian Zone and Shared Space*. Accessed onvienncouver: https://www.vienncouver.com/2015/01/viennas-begegnungszone-shared-space-program/

Willsher, K. (2021). Paris agrees to turn Champs-Élysées into 'extraordinary garden'. *The Guardian*. Accessed onhttps://www.theguardian.com/world/2021/jan/10/paris-approves-plan-to-turn-champs-elysees-into-extraordinary-garden-anne-hidalgo

# A Case of Principle: The Commonalities Between Green Leasing and Urban FM from the perspective of Practice

**David Collins**

Norwegian Univeristy of Science and Technology, Norway
david.collins@ntnu.no

## Abstract

Whilst Green Leasing and Urban FM move forward the sustainable credibility of the built environment and communities from two different levels of development, their thematic commonalities provide possibilities for a degree of entrenchment. Whilst it is well established that sustainable urban and real estate development are in principle codependent, there is yet to be a study linking these two specific aspects of this from a practice-based perspective. This paper endeavours to rectify this problem. The purpose of this study is to look at what Urban FM and Green Leasing have in common and the degree to which they are ultimately reliant on one another. Whilst both are similar in terms of their placement in organizational management, Green Leasing is a building level concept whilst Urban FM is at the community level. The primary purpose of this paper is to show how the commonalities of both can strengthen one another and offer tangible possibilities to improve the sustainable credibility of urban development projects. This study will be conducted with a mixed-method approach. Firstly, a literature study will determine the commonalities between both concepts, and the degree to which they rely on one another to work effectively in projects. The second method will be a cross-sectional case study. Using existing cases that employ both (either implicitly or explicitly), the study can demonstrate how these commonalities and reliabilities can offer tangible outputs to real work projects. The finding demonstrates that there are commonalities between Green Leasing and Urban FM at all levels of organizational management and that the success of both requires holistic consideration of each other, as well as other aspects such as facilities management and citizen participation. The success and failure of projects are depending upon considering these aspects. By not considering the buildings and community levels as separation aspects, but more as different levels of the same project, multi-level considerations can contribute to the success of urban development projects. The commonalities between Urban FM and Green Leasing are profound and do not just show the value of holistic thinking, but also the inclusion of other considerations such as Facilities Management to reduced project failure and long-term project viability.

Keywords: green leasing, urban facilities management, organizational management.

## Introduction

The study of urban planning and the built environment in the context of sustainability is not new. All of these considerations are increasingly arousing the attention and interest not just in academia, but also in practice. The reasons for this are as diverse as they are important, and represent a part of growing trend and synergy that can be seen almost everywhere in new developments both at the building and community levels. Corporate Social Responsibility (CSR) is driving businesses not just to rethink their values from a sustainable perspective, but also to see the benefits that this type of approach can make for their company from the perspective not just of profit, but also industry leadership (Collins et al., 2018). These types of considerations are not just being made at the company level, but also increasingly in government (both national and international). Whilst this was primarily being driven by the Brundtland report in the last decade of the 20$^{th}$ century (Brundtland 1987), more recent treaties and mechanisms such as the Paris Agreement are driving forward the so-called '*Green Shift*' (Collins et al., 2019, p. 639) which refers to the trend of environmentally friendly restructuring in urban and building development.

Whilst some numerous mechanisms and projects are attempting to tackle and achieve environmentally positive developments in the built environment and urban planning. Green Leasing at the building level and Urban Facilities Management (Urban FM) at the community and urban planning level are two emerging concepts and mechanisms endeavouring to tackle these challenges head-on. In their most basic forms, Green Leasing is the method of leasing out a building in a way that is sustainable through good Facilities Management (FM), whilst Urban FM takes the concepts of FM and moves them into planning at a community of city (not just building) scale.

Whilst definitions and the prospects of the utility of both are not new, there have been no publications to date that look at how each concept shares qualities and are to an extent reliant on one another to develop more holistic multi-level urban development projects. This paper endeavours to go some way towards addressing this gap in knowledge.

Through the use of desk research from academia and practice, this paper will contribute systemically quantified and theoretical knowledge to answer the following research questions.

- *What are Green Leasing and Urban FM, and what qualities and aspects do they both share?*
- *In what ways are both Green Leasing and Urban FM needed together to foster more holistic multi-level sustainable urban development projects?*

After looking into the methodological approach, this paper will look into theoretical and definition frameworks of urban development, Green Leasing and Urban FM. The paper will move on to presenting finding reflective of the content of the questions before moving onto the discussion where each of these research questions will be addressed in turn before being concluded.

## Methodological Approach

### Problem Statement

This paper is a study of the commonalities between Urban FM and Green Leasing, along with how this holistic approach can be employed in real work projects. The study of each concept individually is not new, however, the study of them in this context in tandem is. The reason for this approach is due to the need in urban development projects not just to consider the sustainable approach at the community and city level, but also to better understand that these projects are compartmental intrinsically. By looking into the building level as well a 'jig saw' approach can be considered where each part can be better optimized from a sustainability perspective which in theory will result in more sustainable urban development projects.

### Literature

The methodological approach to this paper primarily consists of a study desk literature from academic books and journals, as well as some appropriate industry literature. Unless otherwise stated, all of the literature in this paper will be published from 2015 to 2021 to better be unsure of the scientific validity of its content.

The main source of academic journals comes from a combination of the authors' library, as well as from the academic search engine '*Google Scholar*'. In Google Scholar the primary search terms have been "*Green Leasing*", "*Green Leases*", "*Sustainable Urban Development*" and "*Urban Facilities Management*". To better adjust the searches for accuracy, some adjustment of the searches was conducted, for example, removing architectural sources from "*Sustainable Urban Development*". This was also done selectively and manually to improve it further.
For literature from industry and practice, the standard Google Search engine was used. For the most part, the same search terms were used as in academic literature, however with a greater focus on real-world case studies and examples. The specificity was achieved either by adding the words "*project*" or "*case studies*" to the search terms or by manually looking into sources to see if they featured relevant cases and projects.

During the authors PhD study between 2014 and 2019, they amassed a substantial library of literature relevant to these topics and were used in this study where relevant.

### *Analytical Framework*

The analytical approach for this paper will be primarily cross-sectional in its approach. The reason for this is that it will better allow for generalisations between the two concepts and provide useful data extraction given the space available. The results section in this paper will present common factors between both based not just on the more raw definitions of each concept, but also their commonalities in terms of their utility and applicability. This will then be combined to offer the answers

to the research questions. A more detailed 'sectional' description of this framework is presented in the results.

To more clearly unpack the data in the results section, a more categorical and thematic analytical framework will be used. To better compare and contract Green Leasing and Urban FM equally, their commonalities and differences will be organised under Organisational Management (OM) levels. OM levels are the three levels of management that describe both the position of services and stakeholders in an organisations structure, as well as their intended utility. The three OM levels in this paper consist of the '*Strategic Level*', '*The Tactical Level*' and '*The Operational Level*'.

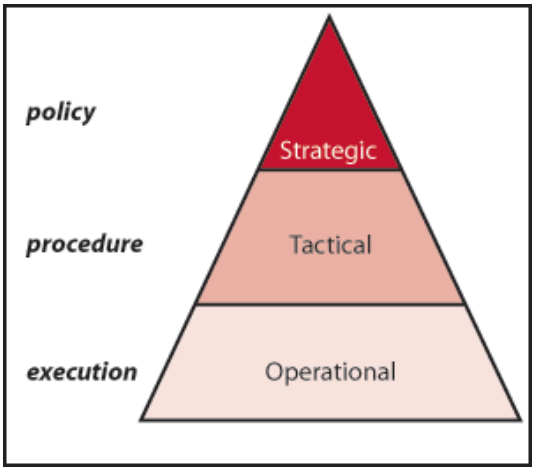



*Figure 1 – Strategic Tactical Pyramid (Justice, 2017)*

As can be seen in Figure 1, the OM level demonstrates different degrees of organizational management based upon '*policy*', '*procedure*' and '*execution*'. The policy is governed by the Strategic Level in OM. The level dictates the direction of an organization and sets the goals and tasks that it needs to achieve. It needs to be entrenched in the financial possibilities and see the bigger picture in terms of how other aspects of OM are governed and managed (Atkin et al., 2015, p. 46). In terms of procedure, the Tactical Level turns the strategic level into sets of workable plans and procedures representative of what has been gone at the Strategic Level. This level deals with resource effectiveness along dictating "*how things should be done*" (Atkin et al., 2015, pp.46-47). At the point of execution, you have the Operational Level of OM. This level is responsible for carrying out the procedures laid out at the Tactical Level. This mostly refers to ground level activities and operations that lead directly through practical implementation towards the achievement of the strategic objectives in the first OM level (Atkin et al., 2015, p.47).

**Theoretical Approach and Definitions**

To ensure a stable contextual basis going forward, it is important to define some key concepts and terms, primarily those of '*Green Leasing*' and '*Urban FM*'. A brief definition of what constitutes an '*Urban Development Project*' will also be provided for clarity.

*Green Leasing*

Whilst the concept of Green Leasing did not invent the concept of a sustainable building, it did go some effort towards quantifying and systematizing this in the context of the non-residential leasing system.

Green Leasing finds its genesis in the term '*Green Lease*', a term that has been in use the in real estate industry since 2007. According to the Better Buildings Partnership (BBP), a group dedicated to improving the sustainability of buildings, a Green Lease is a standard form lease with extra clauses that have an impact on the sustainability of a building. These clauses could include factors such as energy reduction, the purchasing of energy-efficient electronics, and mandatory recycling and waste management (Bugden et al., 2013). Whilst this covers many of the clause based and infrastructural considerations of what makes a building more sustainable, it doesn't cover necessarily cover the nuances that FM, technology and human behaviour have as a part of this discussion.

Green leasing moves '*Green Leases*' further by covering aspects of the 'leasing' itself, and not just a lease. In its most simplistic, Green Leasing "*refers to the process, decisions, and development that leads to and/or involves itself with the operational stages of the Green Lease (or another lease) documents implementation*" (Collins, D, 2018). In essence, Green Leasing is the letting out of a building in a sustainable manner, whilst Green Leases refer to the sustainable credibility offered by the lease document itself. This paper however attempts to go further by proving a theoretical framework by which to further understand and utilize Green Leasing as a concept.

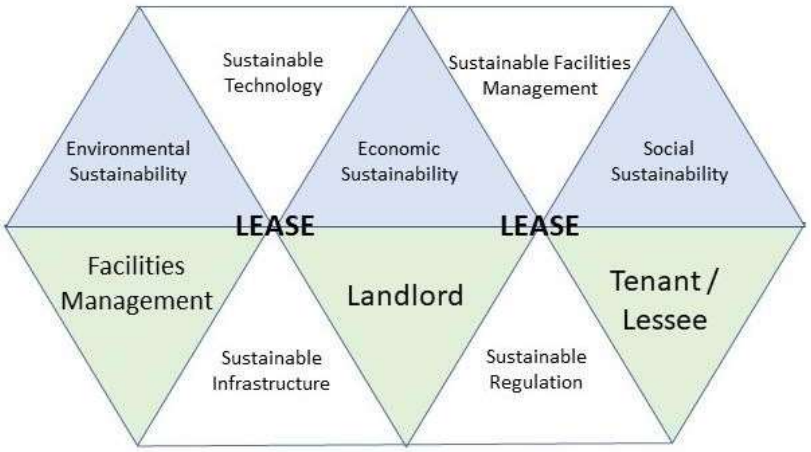



*Figure 2 – Green Leasing Composition Model*

As can be seen in Figure 2, Green Leasing from a stakeholder perspective focuses on the core stakeholders of '*Facilities Management*', '*Landlord*' and '*Tenant/ Lessee*'. The reason for the separation of the '*Tenant/ Lessee*' as separate stakeholders is because in some cases the person who signs the lease may not be the individual who ultimately occupies the property.

These are stakeholders can also be found as the core personnel in a Green Lease. In terms of how the built environment (both internal and external) has a component factor in Green Leasing, these constitute four core aspects. '*Sustainable Technology*' refers to facilities within a building that support its sustainable credibility. This can constitute the likes of energy submetering to support sustainability goals, microgeneration systems or even a mandate for 'Energy Star' certified electronics. '*Sustainable Facilities Management*' is building services and FM that supports the building sustainable agenda. Examples of such services could be 'cleaning by need, not by schedule', optimized waste management and even sustainable consulting services to improve sustainable building operations. '*Sustainable Infrastructure*' represents some of the more tacit aspects of the built environment. This can refer to internal aspects such as Passive House and sensor lighting, or more 'grounds level' factors such as minimal parking spaces and easy access to public transport. Finally, '*Sustainable Regulation*' is a diverse set of factors both within and external to the building. A Green Lease could be one example of an internal form of regulation, whilst national or international regulation that affects a building could also be considered sustainable regulation. All four of these factors are ultimately governed in tone and intention by the '*Triple Bottom Line*' of sustainability which is '*Economical Sustainability*', *Environmental Sustainability*' and '*Social Sustainability*.

The degree to which a building can be considered to operate Green Leasing can ultimately be judged on the degree to which it adopts the stakeholders, factors and aspects represented in Figure 2.

Urban Facilities Management

Whilst also relatively new as a concept in itself, Urban FM is seeing increasing recognition in academia and practice as being worthy of both research and implementation. The genesis of the term can to some extent be found in Facilities Management. According to the European Committee for Standardisation (CEN), FM can be defined as the "*integration of processes within an organization to maintain and develop agreed services which support and improve the effectiveness of its primary activities*" (CEN, 2006). This definition was expanded by the International Standardisation Organisation (ISO) who say that FM practices consist of: *— improve quality, productivity and financial performance; — enhance sustainability and reduce negative environmental impact; — develop functional and motivating work environments; — maintain regulatory compliance and provide safe workplaces; — optimize life cycle performance and costs; — improve resilience and relevance; — project an organization's identity and image more successfully*. (ISO, 2017).

When combining these two, FM on a broad scale can be considered to be the infrastructure and services of a building that operates to support that building primary function. Urban FM shares many of the qualities of FM but expands to the needs and possibilities at the community and neighbourhood scale, not just that of individual buildings and their portfolios. Urban FM in this sense can also be found to have roots in '*Community Facilities Management'* (Community FM). Community FM can be defined as being the role that facilities and their management plan in community life (Heywood et al., 2006). Urban FM on the other hand extends this

further, by integrating the provision of public service accommodation and community support services (Roberts, 2004).

In terms of a more in-depth look at what Urban FM is, Temeljotov-Salaj et al (2020) note that Urban FM is in many respects the result of FM aligning itself to a new sense of what constitutes the '*physical place*'. Urban FM efforts to improve the quality of the physical environment is its primary focus, whilst ensuring that there is an encompassing and holistic link between the citizens that live in this physical environment, as well as the services that support them (Temeljotov Salaj et al., 2020). Urban FM also has a place for fostering further innovation in this sector. In Urban FM thinking, it can be considered to be a viable platform for urban communities and citizens to benefit from innovative possibilities and settings offered by the public and private sectors, whilst also considering how these communities are connected at the wider city scale, along with the sustainability impact that comes with it (Lindkvist et al., 2020). The impact of Urban FM on sustainable urban development can also not be ignored. With the United Nations Sustainable Development Goals prominently featuring the importance of people and buildings (UN 2020), the possibilities for Urban FM to holistically '*stitch these aspects together*' offers further scope not just to utilize Urban FM in real-world projects (Lindkvist et al., 2020), but also to innovate to meet the challenges of today, and the challenges we may face in the future.

## Analysis

The following section will look into the commonalities and differences between Green Leasing and Urban FM both in terms of academia and their potential application in projects. In this section, this paper will be structured under the OM levels featured in the Methodology chapter.

### The Strategic Level

In the following section of the results, this paper will look into the commonalities and differences within the context of the strategic OM level.

#### *The Commonalities*

Although both Green Leasing and Urban FM are conceptually different and operate on different scales (building scale vs community and neighbourhood scale), they have enough commonalities that offer their positional utility to both learn and complement one another.

One example is their relationship to sustainable development. In the case of Green Leasing, this is implied not just in the name, but also in its conceptual intention. Referring to the BBP's Green Lease tool kit, it reinforces this in its sections primarily focusing on implying '*leasing*'. It uses language that states that the behaviour of occupants should consider the environmental requirements of the built environment and that managing agents should reinforce this with appropriate levels of building policy (Budgen et al, 2013). From academic literature Collins et al (2015) state that the company strategic approach is key to the sustainable agenda with Green Leases

and Green Leasing and that buildings need to be occupied in a sustainable manner (Collins et al., 2015, p.132, 133). Whilst Urban FM doesn't have sustainability in its name, it is no less linked to Sustainable Development. At the core of Urban FM's approach to urban development is to effectively entrench within the context making communities and neighbourhoods more sustainable. A core thematic theme for Urban FM is to find solutions that meet the needs of the community whilst ensuring that these goals are integrated into sustainable goals and business opportunities. This is also coupled with the possibilities for more sustainable economic and social improvements in these neighbourhoods and communities (Salaj et al, 2020). The sustainability-focused approach also leads to the wellbeing aspects of communities. Urban FM endeavours to improve the health and well being of communities which are achieved through good sustainable urban planning and an improvement in the living conditions and urban resilience of residents (Xue et al, 2020).

In terms of differences in this regard, Green Leasing is focused primarily on traditional facilities management and architects to implement their sustainable agenda (Collins, 2018). Whilst many aspects of this approach thematically are linked to Urban FM, the strategic considerations (building fabric, facilities services etc) differs considerably from those in Urban FM. In comparison, Urban FM considers the needs of a wider community. Whilst the name may feature 'FM', the type of strategic FM required is very different from that of a building. Managing sustainability at this level requires the like of Urban Planners, demographic models and larger levels of social infrastructure consideration to meets the needs of Urban FM sustainability (Salaj et al, 2020).

At the strategic level, however, that are also stark differences between Green Leasing and Urban FM. The most glaring and difference is that of scale. Whilst the Green Leases cover individual buildings and at the largest, portfolio level, Urban FM is concerned with entire communities, neighbourhoods and even cities. Urban FM characterises itself with dealing primarily the life between buildings (Lindkvist et al, 2020, p. 99), which in many respects the complete opposite it how Green Leasing operates, which looks at how individual buildings fulfil the sustainable agenda without always factoring in (except for its conjunction with some sustainable certification methodologies) the wider landscape and community context. Another key difference between the two concepts is the overall company instigating the Green Leasing or Urban FM project. In the case of Green Leasing, such a policy is likely to be instigated by a property owner or property management company or service provider. An example of this is the FM service company CarbonEES. CarbonESS are an energy management service company who offer their own Green Lease development services. As suggested earlier, their main customers of focus are primarily landlords and to an extent tenants (EnergyTS 2018). For Urban FM the strategic and commissioning organisation is more likely to feature the likes of local municipalities and construction companies. In Trondheim in Norway for example, the Lighthouse Smart Cities Project '+CityxChange' is dealing with issues that have an Urban FM consideration attached to them. Funding by a combination of European Union (EU) funding, municipality and commercial partners, the projects Urban FM focused aims are to connect communities not just by improving their quality of life, but by considering the advancement and evolution of value chains (Lindkvist et al., 2020).

### The Tactical Level

At the Tactical OM level, there is also a variety of factors that establish the commonalities and differences between both Urban FM and Green Leasing which both advance and hinder their ability for synergy.

#### *Commonalities*

With regards to commonalities, a clear one is their applicability to sustainable certification methodologies used to measure the sustainable credibility of the built environment. Despite the differences in the scale of both concepts mentioned in the previous chapter, this level of scale does not exclude it from the worlds largest sustainable certification methodology, Building Research Establishment Environmental Assessment Method (BREEAM). Although originally established a British government research lab, it is now the worlds largest and most widely recognised sustainable certification for the built environment (BREEAM 2014). Generally speaking, BREEAM historically would be more associated with the 'BREEAM New Construction' and 'BREEAM In-Use' schemes (the latter being an operational stage certification)(NGBC 2012) (Collins et al., 2018). However, a more experimental but increasingly active BREEAM assessment is that of 'BREEAM Communities'. BREEAM Communities refers to community master planning with an emphasis on holistically integrating not just buildings at the community level, but also roads, transportation service and other infrastructure (BREEAM 2018), effectively systemising Urban FM into a cohesive methodology. It is essential now to establish why this would be considered to be a 'commonality'. Whilst the scale and systems of assessment may differ, but enclosing both the community and building under the same overarching principle it is possible to view both Urban FM and Green Leasing as different initiatives at different scales that ultimately answer to a common goal.

A second Tactical commonality is an unavoidable fact that both concepts are at the mercy of the challenges associated with policy and regulation. Neither can move entirely independently with a focus solely on the core stakeholders vision but are ultimately guided and to a degree restricted by external regulatory environments. Green Leasing and Green Leases have had a curious and complex history with regulations, both good and bad. Until the Australian governments' leadership was replaced by Tony Abbott, the Australian government not only supported Green Leases but even provided a government handbook that guided their implementation. The handbook had information just on what a Green Lease, but also provided the likes of sample clauses to assist in the drafting of these new leases (Wheeler, 2012). On the more restrictive end, some Green Lease initiatives have been stifled by local regulation. The case of 66 Queen Square in Bristol in Britain, came in the form of regulation concerning historic buildings. The refurbishment of 66 Queen Square consisted of the renovation of a Georgian era building to meet high levels of environmental performance, employ Green Leasing and gain the BREEAM rating of '*Outstanding*'. However, due to local planning regulation resulting in not being able to example, change the sash windows, the full proposed renovation and associated infrastructure could not be completed as intended (Skanska 2015). Urban FM on the other hand also has its challenges in this area but from the perspective of

planning regulation. In the case of the development of a new city between Drammen and Oslo in Norway named '*Fjordbyen*', the direction of the project is dictated by the regional municipality. The development of this smart city features sustainability and well being at its heart with Urban FM principles (such as a high level of citizen participation at the projects design stage) being integrated into the cities development. The city is being developed by a public-private organisation called 'Eidos', however, they do not have free reign to develop the project completely independently. They are instructed to meet specific construction and environmental brief by regional authorities to ensure that the project is not only legal and viable but is also integrated into the wider Greater Oslo scape ("Fjordbyen Lier og Drammen").

*Differences*

The commonalities at this OM level does not eliminate the contrast that also exists between Green Leasing and Urban FM.

One difference that very much divides these two is that of the primary stakeholders involved in each. Whilst the theoretical discussions earlier in this paper shows without dispute that both concepts are user-focused primarily, the governing and development level stakeholders contrast differently. In the case of Green Leasing, these stakeholders consist primarily of the landlord, tenant/ lessee as seen in *Figure 2.* These stakeholders are primarily restricted in the scope to represent the operations and activities within the built environment primarily. These stakeholders themselves can be divided by the OM levels, with the Landlord focusing on the policy and acquisition aspects of the tenancy, the tenant being the primary functional occupant whilst FM personnel engage with the buildings day to day operational functions, repair and maintenance (Collins, 2018a ). Urban FM had stakeholders that exist with similar OM responsibilities, however, their contextual placement is in the wider neighbourhood context and not just in an individual building. In Urban FM and urban development, the amount of stakeholders is diverse, complex and hard to definitively categorise (Lindkvist et al., 2020, p.101). Lindkvist et al (2020) try to simplify this bit creating larger overarching categories. They divide these stakeholders by '*local community*, '*Society*' and '*Value Chain Actors*'. '*Local Community*' deals with aspects like resource management and having a remit that stretches as far as cultural heritage. '*Society*' concerns itself with economic and sustainable development as well as conflict mitigation. '*Value Chain Actors*' are those concerned with fair competition, promoting social responsibility and cementing supplier relationships (Lindkvist et al., 2020, pp. 102-103). As you can see, these stakeholders are more diverse, complex and responsibility heavy than those found in Green Leases and Green Leasing.

Another core difference between both concepts is that of the wider considerations of each in terms of how far their remit stretches. In the case of Green Leasing, this is primarily restricted to key stakeholders within a building. Owing mostly to scale, the wider sustainability responsibility of Green Leasing begins and ends with the building itself. Whilst it is agreed that there is some limited overlap with areas outside the building itself (such as ground maintenance, of the placement of a building and/or policy considering the proximity to the likes of public transport), policy development focuses on the contextual sustainability needs of the building (Bright

et al, 2014, p.10). However, it must also be considered that local or national government regulation can occasionally have an impact on Green Leasing, as seen in the previous case of 66 Queens Square. Urban FM however has a responsibility that in principle and practicality transcends the boundaries of the community and neighbourhood itself. As mentioned in the first section of the results, the wider scale ensures that the Urban Development project has to answer not just to the needs of the developers and citizens, but also the regulators' boundaries and requirements at local and national government levels.

### The Operational Level

The final OM level is Tactical Level which features numerous commonalities and differences with Green Leases and Green Leasing.

#### *Commonalities*

One commonality between the two is the fact that both are recognised by higher levels of government (both directly and indirectly) and this also receive requisite support. In the case of Green Leases and Green Leasing, this can be most starkly seen in the Australian Government previous support for the concept. Before Tony Abbott becoming the Prime Minister of Australia (and this scrapping much of their environmental legislation) the Government of New South Wales and others sanctioned, supported and to a degree codified Green Leases. This level of support and industry leadership has ultimately resulted in Green Leases becoming commonplace in Sydney for example (Janda et al., 2016, p. 5). In this specific example, 60% of all leases signed in Sydney between 2013 and 2014 contained green clauses. Without institutional support from the likes of the Sydney BBP, this sort of uptake would not have been possible (Janda et al., 2016, p. 6). Urban FM also has support from higher levels of government. As opposed to Green Leases and Green Leasing, however, this is as a result of a combination not just of the concept itself, but also the fact that many aspects of Urban FM result in urban regeneration of some kind, which in itself is a local planning issue. Urban is at the mercy in many respects of the fact that regulation has now always developed along with it. Institutional and regulatory factors need to be mindful not to hinder new solutions (Temeljotov Salaj et al., 2020, p. 5). That being said, Government also can '*oil the gears of progress*. Urban FM can benefit from systems of governance that can not only enable sustainable urban development but also foster improvement in well being by enabling better collaboration across communities, neighbourhoods and cultures (Temeljotov Salaj et al., 2020, p. 4).

A commonality that both concepts share as one of their core values is that of them prioritising the end-user over many other factors. This end user in the context of Green Leases and Green Leasing is that of the lessee. According to Mohd Adnan et al (2017) for example, a Green Leasing has to primarily appeal to tenants and that documentation and associated challenges should be mitigated to ensure this (Mohd Adnan et al., 2017, p.5). In terms of providing a financial incentive for the development of Green Leases, Australian Green Lease programs try to encourage at least a 14% return on investment for Green Lease tenants (Langley at al., 2008, p.4), along with less tacit incentives such as sustainable credibility and a better

standard of building. In Urban FM, these end-users refer to the citizens themselves. According to Lindkvist et al (2020) for example, the core of FM thinking in the cityscape is to better meet the needs of citizens in more resilient cities (Lindkvist et al., 2020, p.99). This is further cemented by Temeljotov Salaj et al (2020) who note that Urban FM should get closer to its citizens not just to understand their needs, but also to be a mechanism to foster greater commitment, trust, and inclusion in communities (Temeljotov et al., 2020).

*Differences*

There are also numerous differences at the Operational Level for both concepts. One key difference is that of the managing stakeholders during the operational phase of implementing Green Leases, Green Leasing and Urban FM. In the case of Green Leasing and Green Leases, this is generally the Facilities Manager. According to Collins (2018), an FM is considered to be the stakeholder that interfaces with the building mechanisms, policy management as well as interfacing with the user directly to ensure that their needs are met (Collins 2018c, p.820). Whilst by the very nature of Urban FM there is FM principle integrated into the Urbanscape, FM's themselves do not manage these areas but instead employ FM thinking. In the Urban environment, it is municipal authorities that are responsible for enacting Urban FM operational policy. Personnel are needed that can maintain and operate physical infrastructure, yet also have competencies and thinking that takes advantage of the Urban FM way of running a community. This is a very different approach to Green Leasing, which, while also multidisciplinary, doesn't require the needs and challenges associated with Urban Areas.

Day to day operations of both Green Leasing and Urban FM are also different. On top of the discussions about managing stakeholders in the previous paragraph, the operations themselves also differ between both. In Green Leases and Green Leasing, the day to day role of FM's is not just to support the core services of the building, but also better manage energy, meet the needs of tenants in terms of comfort and solving problems, as well ensuring the building functions with minimal disruption (Collins et al., 2018b, p.245). In the case of Urban FM, this is a considerably wider remit. Whilst Urban FM also features design and management services (Temeljotov Salaj et al., 2020, p. 526), the deterioration and management of the physical space require coordination beyond what general FM can do. Urban FM day to day operations require a large and coordinated effort to create synergy between waste management personnel, ad-hoc maintenance and other aspects that cross several departments and agencies, and not just FM departments found in standard non-residential real estate.

## Discussion

### The Synergy Between Green Leasing and Urban FM

Whilst this paper has been clear that they are not interchangeable as concepts, they do possess a degree of synergy that allows them to work in tandem. In their most literal sense, they offer the same level of thinking, even if it is at differing scales. As seen in the theoretical section of this paper, Urban FM takes traditional FM thinking

and moves it into the urban environment. If FM can be considered to be supporting functions of a building, the same approach can be seen in Urban FM. One of the core roles of Urban FM is to ensure that the primary functions of the Urbanscape are supported through a systematized management and maintenance infrastructure. Whilst the diversity of competencies is likely larger in an Urban FM context, the overall multidisciplinary perspective is the key to both.

Both concepts adherence to external regulation is also a large overarching aspect that they both share. They are both mandated to adhere to similar International Standardisation Organisation (ISO) standards, which in essence means that each has significant overlap in their approach the likes of sustainability. This synergy is further entrenched when considering that both share much in the way of a common strategic level philosophy. Whilst the core function of both has been mentioned elsewhere in this paper, the strength of their role in fostering sustainable development and a high level of wellbeing is critical. Naturally, both have different ways of achieving this as mentioned in the previous section and the theoretical section, they both respect the principle of the likes of the triple bottom line, including considering well-being as an aspect of sustainability and not an entirely separate theme to improve.

Possibly the most important aspect of synergy is that of their complementary nature to one another. Whilst both are at differing scales (the city and built environment), it is this difference that ultimately makes them have a commonality. If a development project at the city level is considered as a ‘holistic’ project, then integrating both the building and urbanscapes as one ecosystem can be a step towards not just building better standards of communities and neighbourhoods – but also plan for urban development projects to work alongside one an another, not operate as separate entities.

### Green Leasing and Urban FM in holistic sustainable urban development projects

Whilst the previous section gave mind to how both Green Leasing and Urban FM can have a synergy, here will look at how this could be potentially applied to projects themselves when considering each holistically.

The integrative aspects of both are an obvious comparison to make in the first instance. Giving BREEAM certifications as an example, a building can receive a higher BREEAM score if transport aspects are given a high level of consideration (BREEAM-Nor 2016). That this means in the context of Urban FM is that of public transport. If a building received a better BREEAM rating by reducing (or eliminating) its car parking spaces, it will need to rely on other services to meet the commuting needs of occupants. If during the development of BREEAM certifying a building there can access to a bus stop considered as a part of the plan, then this isn’t just an example of Green Leases and Urban FM complimenting each other, but representing a vital form of a tandem.

Combining Urban FM and Green Leasing can lead to better embeddedness of sustainability within an urban development project. Sustainable credibility is not a

process that comes from Urban planning alone but also requires a multi-disciplinary approach. If an urban development project was to consider the energy efficiency and waste management aspects of the buildings within its community, the infrastructure of the community itself can be better orientated to consider the bigger picture. Furthering the point from the previous paragraph, understanding the needs of building occupants will allow Urban FM practitioners to understand better what the community needs are in terms of public transport, resource management and the likes of recreational activities.

A less materially tangible way that projects can benefit from both concepts, is the ability to learn from each other to advance each concept respectively. It is undeniable that Urban FM is a product of FM thinking, however, it doesn't mean that a considerable amount more cannot be learnt from FM. Urban FM can learn about wellbeing, complaint management and user considerations along with many others. Similarly, Green Leasing can learn from Urban FM about larger multidisciplinary stakeholder management, resources management and integrative planning. Whilst this is not an exhaustive list, it is nonetheless a demonstration of how both whilst are developing separately, have plenty still to learn to advance themselves by looking in-depth at one another.

## Conclusion

In conclusion, whilst Green Leasing and Urban FM are in many respects on two different trajectories, the arenas in which they are applied lend to almost a mandatory tandem relationship.

Both share a common philosophy on sustainability and wellbeing, they both support core functions of their respective building or city and are even subject to some of the same kinds of regulation. Although they both have different types of operational stakeholders, end-users and broad competencies, their placement in terms of scale compliments them in ways that seem to become clearer the more they are investigated.

This paper has also aimed to show that in real work projects they can complement one another and allow for this to be 'knit together the more holistic aspects of sustainable development. In a community, urban development and the buildings that reside in it are not in any way separate but are part of the overall picture and to not look at both in tandem is arguably an act of folly.

It is impossible within the scope of a paper this length to exhaustively cover this topic in its entirely, however it is nonetheless hoped that this work will stimulate not just a greater discussion of Green Leasing in the context of Urban FM and vice versa, but more importantly, result in a larger consideration for integrating built environment concept in the context of urban development. It is also hoped that the results of this paper can appeal to a demographic of scholars outside that of urban development and FM, but also appeal to project management disciplines, architecture, commercial property developers and the wider discipline of urban planning.

A project regardless of its intention is a sum of its parts, this paper claims that in urban development Green Leasing, Green Leases and Urban FM are vital and ultimately codependent parts in projects where they are to be found.

## References


(CEN), European Committee for Standardisation. 2006. *EN15221-1: 2006.* Brussels: European Committee for Standardisation (CEN).

Atkin, Brian, and Adrian Brooks. 2015. *Total facilities management*. 4 ed.: John Wiley & Sons.

BREEAM-Nor. 2016. *BREEAM-NOR New Construction 2016. TECHNICAL MANUAL. SD5075NOR*. Technical Manual. Oslo: Norwegian Green Building Council (NGBC).

BREEAM. 2014. "What is BREEAM?". BREEAM. Accessed 11th March. http://www.breeam.org/about.jsp?id=66.

BREEAM. 2018. "How BREEAM Certification Works." Bre. Accessed 24th May. https://www.breeam.com/discover/how-breeam-certification-works/.

Bright, Susan, and Hannah Dixie. 2014. "Evidence of green leases in England and Wales." *International Journal of Law in the Built Environment* 6 (1/2): 6-20. https://doi.org/10.1108/ijlbe-07-2013-0027.

Brundtland, G. 1987. "Our common future." *Report of the World Commission on Sustainable Development. UN, Geneva* 208.

Bugden, Keith, Chris Botten, John Staheli, Siobhan Cross, and Sue Highmore. 2013. *Green Lease Toolkit.* London: The Building Centre. http://www.betterbuildingspartnership.co.uk/download/bbp-gltk-2013.pdf.

Collins, D. 2018a. "Green Leases and Green Leasing in Theory and in Practice: A State of the Art Review." *Facilities* 36 (13/ 14).

Collins, D. 2018b. "Green Leases and Green Leasing: A Terminological Overview of Academia and Practice." European Facilities Management Conference (EFMC) 2018, Sofia, Bulgaria, 5th-th June 2018.

Collins, D, and A Junghans. 2015. "Sustainable Facilities Management and Green Leasing: The Company Strategic Approach." *Procedia Economics and Finance* 21: 128-136. https://doi.org/10.1016/s2212-5671(15)00159-8.

Collins, D, A Junghans, and T Haugen. 2018. "Green Leasing in Sustainable Commercial Real Estate: The drivers and barriers for owners and tenants of sustainable office buildings." *Journal of Corporate Real Estate* 20 (4).

Collins, David. 2018c. "Green leases and green leasing in theory and in practice: a state of the art review." *Facilities*. https://doi.org/http://dx.doi.org10.1108/F-02-2017-0023. http://hdl.handle.net/11250/2626817, http://www.emeraldinsight.com/info/journals/f/jourinfo.jsp.

Collins, David, Tore Haugen, Carmel Margaret Lindkvist, and Christian Aamodt. 2019. "Bridging the gap between sustainable FM and sustainable buildings an exploratory study of six public buildings in Norway." *Facilities*. https://doi.org/http://dx.doi.org10.1108/F-01-2018-0007. http://www.emeraldinsight.com/info/journals/f/jourinfo.jsp.

EnergyTS. 2018. "Green Leases." Energy TS. Accessed 3rd September. https://www.energyts.com/green-leases.

"Fjordbyen Lier og Drammen." 2021. Fjordbyen Prosjekt. Accessed 24th June. https://fjordbyenlierdrammen.no/.

Heywood, Chris, and Jim Smith. 2006. "Integrating stakeholders during community FM's early project phases." *Facilities*.

ISO. 2017. *ISO 41011:2017(en).* iso.org: ISO.

Janda, Kathryn B., Susan Bright, Julia Patrick, Sara Wilkinson, and Timothy J. Dixon. 2016. "The evolution of green leases: towards inter-organizational environmental governance." *Building Research & Information*: 1-15. https://doi.org/10.1080/09613218.2016.1142811.

Justice, Adam. 2017. Strategic Tactical Pyramid. socialmediasun.com: Social Media Sun.

Langley, Angela, Lara Hopkinson, and Vicki Stevenson. 2008. *Green Leases: an opportunity to develop a sustainable approach for Tenanted Commercial Buildings in the UK.* Welsh School of Architecture.

Lindkvist, Carmel, Alenka Temeljotov Salaj, Dave Collins, Svein Bjørberg, and Tore Brandstveit Haugen. 2020. "Exploring urban facilities management approaches to increase connectivity in smart cities." *Facilities*.

Mohd Adnan, Yasmin, Nur Uyun Aman, Muhammad Najib Razali, and Md Nasir Daud. 2017. "The implementation of green lease practices for office buildings in Kuala Lumpur, Malaysia." *Property Management* 35 (3). https://doi.org/10.1108/pm-12-2015-0067.

NGBC. 2012. *BREEAM-NOR ver 1.0 (2012).* BREEAM NORGE (Oslo).

Roberts, Phil. 2004. "FM: new urban and community alignments." *Facilities*.

Salaj, Alenka Temeljotov, Savis Gohari, Coline Senior, Yan Xue, and Carmel Lindkvist. 2020. "An interactive tool for citizens' involvement in the sustainable regeneration." *Facilities*.

Salaj, Alenka Temeljotov, and Carmel Margaret Lindkvist. 2020. "Urban facility management." *Facilities* Ahead of print.

Skanska. 2015. "66 Queen Square." Skanska. Accessed 3rd September. https://www.skanska.co.uk/expertise/projects/164900/66-Queen-Square.

UN. 2020. "Sustainable Development Goals." United Nations. Accessed 16th June. https://sustainabledevelopment.un.org/?menu=1300.

Wheeler, Chris, Alison Pratt, and Beth Cox. 2012. *The Green Lease Handbook.* Australia: The Council of Australian Governments. http://www.gbca.org.au/gbc_scripts/js/tiny_mce/plugins/filemanager/Green-Lease-Handbook-20120907-PDF.pdf.

Xue, Y, A Temeljotov Salaj, and Carmel Lindkvist. 2019. "Exploring the roles of facility management for liveable cities." THE 18TH EUROFM RESEARCH SYMPOSIUM EFMC 2019, Dublin.

# Discussing sustainability in prefabricated buildings

**Katerina Tsikaloudaki**

Aristotle University of Thessaloniki, Greece
katgt@civil.auth.gr

## Abstract

Although modern prefabricated buildings may offer many advantages, such as a significant reduction in cost and time, improved quality and accuracy in manufacture, easy dismantle and reuse of its components, etc., they have not gained the attention they deserve in the construction market yet. In this paper, emphasis is given on enhancing sustainability in prefabricated buildings; this is achieved by presenting the holistic approach followed through the development of a new, innovative prefabricated wall element, designed to exhibit optimized structural, hygrothermal, energy, acoustic, fire and environmental performance. The methods and tools that were used for the design and verification of the new building element are presented and the performance of the new building element is analysed for different configurations, which are derived in order to reach specific objectives. For example, in order to support the heat storage and the control of indoor temperatures, the integration of PCMs in the element's layers is investigated and the solution is compared to the "conventional" configuration of the building element. Beyond studying the new building element separately, it was regarded essential to examine its contribution to the sustainability of the overall building unit. Within this context, a single-family building unit was designed and constructed. Its performance was analysed with the help of simulation tools but also through measurements of the indoor conditions. Through this approach, the new building element and construction scheme are systematically assessed, and the achievement of objectives is verified. The new certified and optimized building performance will increase the share of prefabricated buildings in the Mediterranean countries, where housing needs are gradually growing, while at the same time, energy efficient and environmentally friendly construction will be promoted.

Keywords: sustainability, prefabricated buidings, innovation.

## Introduction

Prefabricated constructions have their origins in antiquity, as significant works of past civilizations were configured with elements constructed beforehand, which were then transported and assembled on site. In those times, prefabrication was merely a solution where there were no suitable local materials. In more recent times, prefabrication was used for covering wide scale building needs, i.e. in post-war periods, when numerous temporary and emergency prefabricated buildings, mainly

houses and schools, needed to be built at minimal cost and at a very short time. However, the extensive deterioration of postwar prefabricated buildings, which eventually failed to meet minimum structural, waterproofing and fire safety requirements, contributed to the growing unpopularity of prefabricated systems worldwide (Pons, 2014).

In the past 50 years, interest has arisen in new building technologies and the industrialized construction. Emphasis is given on the added value of industrialized architecture and technologies, which includes the ability to provide higher quality within minimum construction time and costs, increased possibilities for customization and adaptability, reduced environmental impacts and advanced sustainability (Yang, Yue, 2021).

Nowadays, prefabricated residential buildings account for only 15% in Europe. Even lower penetration of prefabricated buildings designated for housing purposes is met in the Mediterranean countries (Apaydin, 2011); for example, in Greece the rate of prefabricated residential buildings ranges around 2%. However, there are signs that this rate is eventually growing, which is supported by the recently observed increasing share of low-rise residential buildings.

The main types of prefabricated building concern structures made of wood, reinforced concrete or steel, as well as composite systems, which usually combine concrete with steel elements. In low rise buildings (i.e. up to 2-3 storeys above ground) one of the most widespread prefabrication type employs the steel framework with lightweight walls, due to the easiness and speediness of site installation, as well as the adaptability of the design to many architectural morphologies.

Given that the building design objectives have been shifted in order to go along with the low-carbon, environmental protection, green and energy-saving sustainable development requirements, it is crucial for the companies of this particular building's sector to integrate such principles in their building design and construction.

In this paper, the evolution of the construction technology employed by the company Prefabricated Buildings Theodoros Iliadis is presented, highlighting the gradual integration and assessment of the sustainability principles in the building envelope and structural framework.

The optimization of the building's sustainability outline was achieved within the research project SU.PR.I.M. (SUstainable PReconstructed Innovative Module), which aimed at the redesign of the prefabricated buildings provided by the company, through the development of an innovative building wall module. In the research project academia (Aristotle University of Thessaloniki) is collaborating with an SME partner (Prefabricated Buildings Theodoros Iliadis) in order to bring innovation in the market and achieve economic development based on knowledge and sustainable specialization.

## Methodology

The paper intends to highlight the changes induced to the constructional techniques of the building envelope configuration and the structural framework used in the prefabricated houses of Theodoros Iliadis' company. The examined prefabrication system has a steel framework and the transformation of the structural and building envelope configuration stemmed from the pursuit of sustainability.

More specifically, the initial building configuration of the prefabricated houses is presented, along with potential issues appearing during the use of the buildings. The wish for addressing these issues and improving the quality of the construction created the need for the building configuration's evolution. Within this framework, the new constructional approach is described and assessed in terms of structural, hygrothermal, energy and environmental approach.

The structural assessment involves the changes that are related to the load bearing system. Although the steel framework remains the main structural system of the buildings, it was considered necessary to reduce the total weight of steel components by transforming the wall elements to load-bearing ones. This new structural system would not only enhance the structural performance of the building against all imposed loads (including both static and dynamic ones) but would also contribute to decreasing the environmental impact of the construction through its life cycle.

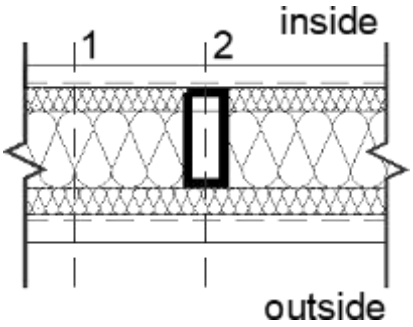
The hygrothermal assessment entails the performance of the building elements against heat and moisture transfer. It also includes the analysis of the thermal bridging effect, which is crucial for steel constructions, as well as the thermal mass, which influences the building performance, especially in the Mediterranean climate. The energy performance concerns the heating and cooling loads that are required in order to sustain the desired conditions indoors. Their extent is defined by the building envelope configuration and the building's use. For the study, the heating and cooling energy needs for a low-rise single family building are estimated with the help of a dynamic simulation tool (EnergyPlus) considering various thermal insulation levels.

The energy consumption during the operational phase defines the impacts on the environment during this particular phase, but it is essential to apply a holistic approach and include all life cycle stages in the analysis. For assessing the environmental impact, the procedures described in relevant ISOs were applied, along with data from international databases and information from the Greek market and the company.

### The evolution of the constructional system

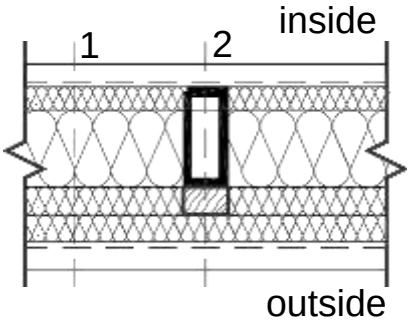
The prefabrication company started its activity in 1973. Since its foundation, the company employed a steel framework for the structural form of the buildings, composing of steel columns and beams.

Till 2009 the walls were constructed as lightweight elements, which composed of horizontal and vertical steel hollow sections forming frames, extruded polystyrene for filling in the gaps between the steel elements, woodwool cement boards, used for forming the outer surfaces of the wall, and cement mortar as their finish (Figure 1.a.). This configuration, although satisfactory for its energy performance as the U-values were adequately low, encountered thermal bridges along the steel elements, which occasionally caused surface vapour condensation during winter (Tsikaloudaki et al, 2010).




Layers, section 1:
- Cement mortar
- Wood wool cement board
- Thermal insulation filling
- Wood wool cement board
- Cement mortar

Layers, section 2:
- Cement mortar
- Steel hollow section
- Wood wool cement board
- Cement mortar




Layers, section 1:
- Cement mortar
- Wood wool cement board
- Thermal insulation filling
- Extruded polystyrene
- Wood wool cement board
- Cement mortar

Layers, section 2:
- Cement mortar
- Steel hollow section
- Wood beam
- Wood wool cement board
- Cement mortar

Figure 1. Schematical drawing of the prefabricated wall element constructed by the company Theodoros Iliadis in its lightweight form

In order to minimize the thermal bridging effect of the metal frame, a simple way for mounting the wood wool cement boards was suggested (Figure 1.b.): instead of nailing the boards directly on the steel frame of the wall, a wooden element covering the area of the metal was placed between the steel frame and the wood wool cement boards. The extra gap caused by the presence of the wooden elements (3 cm thick) is filled with extruded polystyrene. By this way, the area weighted U-value of the wall element was decreased by approximately 20%, while the linear thermal transmittance that denotes the thermal bridging effect along the metal frame was reduced almost in half. Relevant changes, proposed for sensitive areas of the building envelope, as for example around the windows, lead to a significant decrease of the thermal bridging effect, as well as to a substantial improvement of the energy performance of the building envelope. However, the construction remained light weight, with moderate thermal mass (, due to the extensive use of

thermal insulation materials in the building envelope, which occasionally caused thermal discomfort on hot summer days.

The prefabrication company, driven through its objective for the continuous improvement of its constructions through innovation for well being and sustainability, decided to develop more its constructional system in order to further systemize the construction, reinforce the load-bearing capacity and provide even more sustainable buildings. Within this context, a change to the structural system was applied, which merely involved the transformation of the wall elements to load bearing ones and the increase of the thermal mass. The optimization of the building element with regards to its configuration, materials and performance was based on the sustainability principles and requirements.

The new wall element still entails a steel frame, but it is now formed as a composite panel, comprised of two lightly reinforced concrete plates, 5cm thick each, positioned on either side of the steel frame (made of vertical metal hollow elements). The cavity between the metal hollow elements is filled with thermal insulation boards, and the whole wall element is insulated with ETICS. The building envelope is further insulated externally with expanded polystyrene.

In fact, the configuration of the building element is very similar to its previous form, but two substantial changes have been imposed: (i) the woodwool cement boards that formed the outer surfaces of the wall have been replaced with the reinforced concrete panels, adding thermal mass to the component, (ii) the building element has acquired load-bearing capacity, as the reinforced concrete panels are connected to the steel sections and participate in the structural performance of the building.

The main structural framework of the building consists of metal beams and columns. The connections between the wall element were studied in detail; firstly the joints were designed considering welding between the joining parts, but later bolting was employed, in order to systemize the construction. Lately, a composite connection is being used, through which the main steel elements are connected with the wall elements both through bolting and casted concrete.

In this way, a new wall system was designed, optimized and validated through a process that involved both laboratory and field tests, as well as analytical simulations, covering all aspects of sustainable building performance, i.e. the structural, hygrothermal, energy, fire, acoustic and environmental performance.

## Design, assessment and validation of the new wall element

The objective governing the building module's development is to create a wall system that will be capable, through the selection and the configuration of material layers forming the assembly, to meet high level requirements regarding (Tsikaloudaki et al, 2020a):

- Structural efficiency (safe response to the imposed loadings and load bearing capacity).

- Advanced thermal behaviour (i.e. thermal performance enhancing the whole building's energy efficiency; in this light this advanced behaviour will contribute towards the construction of nZEB, which represent current trends in the respective regulations).
- Excellent hygric performance (avoidance of surface and interstitial water vapour condensation, effective response against driving rain/rain loads).
- Efficient sound insulation levels.
- Reduced environmental impacts during its life – cycle (i.e. favourable environmental footprint).

The structural performance

The first steps of the study were to configure the basic form and estimate the dimensions of each specific part of the composite panel, in order to cover specific requirements. The analysis was made through simulation, using the finite element method, and included the basic parts of the building module, i.e. the metal hollow elements, the concrete panels, the connections between the metal hollow elements and the concrete panels, as well as the connections between consecutive building modules and between the main bearing structure and the wall elements.

The initial study indicated the properties of the main parts of the building element. The analysis of the basic form of the building element was tested against buckling and fire. Apart from the analytical calculations, experimental tests were run for defining the mechanical and physicochemical properties of the concrete panels for different compositions, as well as the performance of the whole building element as regards its strength and its performance against static and dynamic loads.

Special attention was given to the connection of the building panels with the main bearing organization, usually composed of HEA100 or HEA 120 steel sections. Two connection types were studied: welding and bolting, with the latter being considered as more appropriate in order to guarantee high quality joints made in situ. For both connection types, special joints were designed and tested in praxis for their easiness and feasibility of construction through real size samples.

Both the building element and the whole structural system, including the building element, the steel columns and beams, were tested experimentally in order to define their actual performance in static and dynamic models. The experimental measurements showed the load bearing capacity of the wall and indicated that it performs remarkably well both under in-plane and out-of-plane and dynamic loading (Nikolaidis et al, 2020).

More specifically, it was found that the overall performance of the wall system was significantly enhanced due to the presence of the steel mesh reinforcement and the embedded shear connectors, which prevented a potential brittle failure. The obtained maximum capacity was 22 kN under out-of-plane bending loading, and 13.0 MPa under concentric axial compression. The maximum shear resistance recorded under diagonal compression was equal to 3.0 MPa.

### The hygrothermal and the energy performance

The basic form of the building element contains a layer of thermal insulation, 5 cm thick, located on the core of the composite panel, between the hollow steel sections. However, at the areas of the metal beams the lack of thermal insulation causes excessive heat loss and intense 3-D heat flows. These phenomena were studied thoroughly, even after the integration of a thermal insulation layer on the external side of the building element. The special studies showed that the areas around the vertical and diagonal steel sections are characterized by increased heat flows and significant temperature differentiations, which were decreased as the thermal insulation thickness increased.

These phenomena caused by the presence of the steel elements on the composite panels and the inhomogeneous layers composing the panel, necessitated the use of special methods in order to estimate the thermal performance of the building element, i.e. the calculation of the thermal transmittance (U-value) and thermal capacity coefficients, the analysis of the thermal bridging effect on the joints of the building element, etc. All analyses were based on 2D energy flow calculation tools. In order to validate the thermal performance of the building element, laboratory measurements were also employed.

The hygric performance was also studied in detail, with a special focus on the phenomena of surface and interstitial condensation, as well as the performance of the building element against driving rain. For this study a specialized simulation tool (WUFI 2D) was used.

Additionally, the energy performance of low-rise residential buildings that employed the new wall system was improved when compared to conventional buildings. More specifically, the energy needs of the prefabricated building were found lower by 2–15% than the ones calculated for a relevant conventional building (Tsoka et al, 2020). The difference in energy needs varied as a function of the thermal insulation thickness; it is interesting to notice that as the thickness of the thermal insulation increased, the difference in energy needs between the two wall configurations became lower.

### The acoustic performance

In general, lightweight prefabricated constructions are associated with bad acoustic performance, as the light panels do not contribute to the protection of the interior space against noise. In order to ensure the optimal performance of the building element in a holistic way, a special acoustic study was conducted, which aimed firstly at the identification of critical points or potential problematic behaviors and secondly at the proposal of measures, if indicated so by the previous steps.

More specifically, the sound reduction index was calculated with the use of a special simulation tool (INSUL) and measured in the certified Laboratory of the Architectural Technology of the Aristotle University of Thessaloniki.

The analytical study presented interesting results. As regards the air-born sound, the noise protection capacity of the building element is found equal to 51 dB, with the minimum value set at 50 dB. For external noises, the average equivalent sound pressure level (LA,eq)) was calculated for noise level equal to 65 dB, 70 dB and 75 dB. In all cases the parameter ranged below the threshold, which is 35 dB. It is interesting to notice that the increase of the exterior noise level by 5 dB lead to the increase of the parameter by 11% (for 70dB) and 18% (for 75dB).

With the laboratory measurements, the above performance indicators were validated and a parametric analysis on different thermal insulation materials and thicknesses was conducted, in order to investigate all alternative configurations of the building element and their acoustic performance (Tsirigoti et al, 2020).

The environmental performance

The environmental performance of the wall system aimed at the estimation of its footprint during its first life stages, i.e. from raw material extraction through materials processing and manufacture (from cradle to gate). The study expanded to the building level and included all building elements composing a single family residential unit throughout its whole life cycle, i.e. from all raw material extraction and processing, manufacture, distribution, use, repair and maintenance, as well as disposal or recycling.

The environmental impact, within the system boundaries was calculated according to the principles of ISO 14040, ISO 14044, EN 15804 and EN 15978. Ecoinvent database provided the environmental (LCI) data, while all remaining information and inputs derived from the building construction plans, the Greek market and from personal communication with the prefabricated building manufacturer.

As regards the analysis on the building level, the results indicated average contribution to the total life cycle impact for the upstream processes (A1-A3; raw material, supply, transport, manufacturing) of about 40.0%, while for the core processes (A4-A5; transportation, building construction) this value is low (0.55%). The replacement of materials and components (B4) contributed with ca. 30% to the total life cycle impact and the energy use-operating phase (B6) with a total of 28% (heating 1.9%, cooling 10.6%, DHW 15.7%). The shares of each life cycle change with regard to the climate context of the building's location (Tsikaloudaki et al, 2020b).

Considering only the embodied impact, the results highlighted as the main average impact contributors the windows, the steel sections, the heating and DHW system, the XPS insulation and the cooling system.

## Conclusions

The paper intended to present the evolution of the constructional system used by a Greek company for prefabrication buildings, which was based on the pursuit of sustainability. Beyond the description of changes that were merely related to the

optimization of the structural, hygrothermal, energy and environmental performance of the wall element and the building envelope, emphasis was given to the presentation of the holistic approach which was employed in the research project SU.PR.I.M. in order to maximize the sustainability of the constructions and gave extra innovative character to the project.

The multifunctional innovative building element that is developed through the SU.PR.I.M. project is now the main part of the prefabricated buildings constructed by the participating company. The optimality of the project's results was ensured by the continuous participation of the company in every stage of the research, which guaranteed the achievement of a high technological readiness level.

The new prefabrication system has resulted in the systemization of the elements' production and buildings' construction, leading eventually to the increase of its productivity, the improvement of building's quality, as well as the reduction of time and cost of building's erection. The new constructional system offers high adaptability to any climate or regulation requirements regarding the structural, thermal and energy performance. Additionally, the robustness and the advanced performance of the new prefabrication system, along with its certification and systematic analysis, has attracted new consumers and it is expected to increase the financial cycle of the company.

Beyond the benefits of the company, the new prefabrication system leads to an energy efficient, low carbon, sustainable building. The energy needs during its use is lower than the ones derived for conventional buildings, resulting to lower environmental impacts and lower operational costs. The environmental impact is not only minimized during the use phase of the building, but carefully studied to cover the whole building life cycle. Additionally, the enhanced indoor conditions, considering not only the thermal but also the acoustic environment, contribute to the health and the well being of the building users.

In that sense, the new prefabrication system developed through the research project SU.PR.I.M. and applied through the prefabrication company Iliadis brings the most positive impacts to the company, the environment and the society in general.

**Acknowledgements**

This research has been co-financed by the European Regional Development Fund of the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH – CREATE – INNOVATE (project code:T1EDK-03042).

## References

[1] Pons, O. (2014). Assessing the sustainability of prefabricated buildings in Eco-efficient Construction and Building Materials, Editor(s): F. Pacheco-Torgal, L.F. Cabeza, J. Labrincha, A. de Magalhães. Woodhead Publishing. https://doi.org/10.1533/9780857097729.3.434.

[2] Yang, H., Yue, Y. (2021). Optimization of green and low-carbon concept in prefabricated building design. E3S Web of Conferences, 248, https://doi.org/10.1051/e3sconf/202124802001

[3] Apaydin, F. (2011). Effectiveness of prefabricated house industry's marketing activities and Turkish consumers' buying intentions towards prefabricated house. Asian Social Science, 7, pp. 267-276.

[4] Tsikaloudaki, K., Laskos, K., Karaoulis, A., Chatzidimitriou, A. (2010). Optimizing the performance of light weight prefabricated buildings. Presented in the 3rd International Conference PALENC 2010, 29/09/2010-01/10/2010, Rhodes, Greece.

[5] Tsikaloudaki, K., Theodosiou, T., Giarma, Ch., Kontoleon, K., Aravantinos, D., Tsoka, S., Tsirigoti, D., Karaoulis, A., Chastas, P. (2020A). Building a new sustainable preconstructed building element. IOP Conf. Series: Earth and Environmental Science, 410.

[6] Nikolaidis, T., Koukouli, N., Maliokas, A., Baniotopoulos, CC (2020). Stability Investigations in Composite Steel-Concrete Walls for Restoration Purposes to Enhance Structural and Sustainable Design. IOP Conf. Series: Earth and Environmental Science, 410.

[7] Tsoka, S., Theodosiou, T., Papadopoulou, K., Tsikaloudaki, K. (2020). Assessing the energy performance of prefabricated buildings considering different wall configurations and the use of PCMs in Greece. Energies 13(19), https://doi.org/10.3390/en13195026.

[8] Tsirigoti, D., Giarma, C., Tsikaloudaki, K. (2020). Indoor acoustic comfort provided by an innovative preconstructed wall module: Sound insulation performance analysis. Sustainability, 12(20), https://doi.org/10.3390/su12208666.

[9] Tsikaloudaki, K., Theodosiou, T., Tsoka, S., Chastas, P. (2020b). Conventional vs prefabricated buildings: pursuing the goal of sustainability. Proceedings of the 7th international conference Places and Technologies 2020, pp. 289-296.

# Importance of Facility Management in renovation projects

**Mahgol Afshari**

NTNU Norwegian University of Science and Technology
mahgola@stud.ntnu.no

## Abstract

Renovation of existing buildings with huge energy wastage is shown to have the potential of CO2 emission mitigation. However, proper management of rehabilitation processes can play an important role in achieving a better result in terms of the environmental impact of such renovation processes. Adequate and active facilities management is crucial to the performance of any organization, no matter the size and scope. This will lead to efficient and smooth operations that are not often disrupted by various series of technical difficulties. Good facilities management and maintenance can also deliver greater compatibility, inflexion and also sustainability for the organization. The absence of an experienced facility manager in the projects can lead to irreparable consequences and make the project manager's work much more difficult. Managing your facilities and premises will make maintenance issues less and far between, helping you save on expenses significantly. This study focuses on gaining awareness of the importance of facility management and shows the role of it in the renovation of an existing municipal building (Stavanger rĺdhus) in Stavanger as a case study. Figuring out about the way which facility management can add value to the organization as well as to society, understanding its importance on different projects and also advantages and disadvantages of having facility management in our project are analyzed through literature review and an interview with the project manager of this case. The rehabilitation of Stavanger rĺdhus from the perspective of facility management importance and investigation of the problems that lack of facility management creates for the renovation of Stavanger radhus are discussed in this work.

Keywords: Facility Management, rehabilitation of buildings, Norwegian case.

## Introduction

This conference paper aims to address the research question "*How important is existing of Facility Management in rehabilitation projects?*". It is looking at this question from the perspective of the importance of having facility management for renovation of Stavanger rådhus and it focuses on the investigation of the problems that lack of facility management might create for this project.

## Case Description

Stavanger radhus (Figure 1) was completed in 1963 and it was designed by Jan Jæger who was the city architect. This building is classified as a post-war modernist and it is located in Øvre Kleivegate 14, 4005 Stavanger. The building is placed in the area defined as the center core in the Sentumsplanen. As part of revitalizing downtown, the focus will be on the town hall quarter. Stavanger rådhus needs rehabilitation. Therefore, the demolition has started from February 2021 and it will continue until July/August 2021. According to the estimates, the renovation of this building will be finished in autumn of 2024. This project has high environmental and climate goals and the most obvious one is that this building will be the region's first fossil-free construction site. The entire project has a cost framework estimation of NOK 291 million (Loddervik, 2021).

This building was designed to be an appropriate and safe workplace and a place that takes care of citizens' contact in a simple and forward-looking way. The building was completed in 1963, and over the years some changes had occurred. Since 2010, several assessments have been made of the building's functions and technical condition. As a result of those assessments, the building does not satisfy current legal requirements for escape and universal design. Construction components have reached life expectancy, and in part have an immediate need for replacement.

*Figure 1. Building of Stavanger rådhus, :* https://www.stavanger.kommune.no/nyheter/na-starter-renoveringen- av-radhuset/

## Regulation overview

According to The European standard EN15221-1, Facilities Management (FM) is a coalition of procedures that occurs within an organization and it aims to first sustain and then extend or develop the services and also help to improve the efficiency and in some cases, cause for the reduction in the costs of that organization (CEN, 2006).

Based on the history of usage of Facility Management, it can be discussed that the processes and activities which are called as part of FM nowadays, have been used in different organizations for a long time. However, the idiom FM which tend to be familiar for almost all organizations has been established in the 1980s (Jensen et al., 2013). During the 1980s and 1990s, Facility Management was developed as a new management discipline and its main aim was controlling and also detracting the cost by introducing some new routes of operating and organizing a number of proceedings and activities which there were not so much management consideration on it before (Jensen et al., 2013). These days Facility Management is a developing profession that dedicates itself according to the conditions of society and the passage of time. By looking at the history of this profession and according to Wiggins (2014), Ross Perot, who was an American business magnate, billionaire,

and philanthropist, was the first person who introduced the term Facility Management during the 1960s. At first, this term was only linked to the management of IT- systems and networks but later on it developed and included furniture and office design management as well.

The National Association for Facility Management (NFMA), was established in the USA during the 1980s and after that, it was introduced as the International Facility Management Association (IFMA). According to IFMA, FM is a system that works on ensuring functionality of the built environment through an “integrated management process that considers people, process and place in an organizational context”. The domain of FM has expanded dirung the time, and in addition to space management, it went through addressing some issues like corporate social responsibility, risk management, HR, technology, real estate (Wiggins 2014).

According to the standard ISO 41013 (2017), Facility Management is defined as “an organizational function, which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business”. This standard defines some targets which having Facility Management in projects like rehabilitation of Stavanger rådhus leads to achieving. Some of these targets are:

- Providing motivating, functional and safe workplace;
- Scheming a more successful identity and image of the organization;
- Ameliorating efficiency, productivity, financial performance and quality;
- Optimizing life-cycle performance and costs;
- Reduce negative environmental effects and improving sustainability;
- Promoting flexibility and relevance;

As it is mentioned in the case description, one of the goals of this project is to make this building an appropriate and safe workplace. This goal is one of the targets of Facility Management which is mentioned by standard ISO 41013 (2017) and it shows the importance of the existence of FM in the rehabilitation of Stavanger radhus.

In addition to the above targets, European Standard (CEN, 2006) defines the main benefits of Facility Management approaches in organizations as follows:

- Development of organization sustainability by performing a life cycle analysis for the facilities;
- Decrease of conflicts between internal and external service providers;
- Making clear relation between supply and demand side by dedicating persons as single points of contact for all services which are defined in a Facility Management agreement;
- Based on strategic decisions, which leads to systematic insourcing or outsourcing procedures, manageable concept of internal and external responsibilities for services will be defined;
- Combination and coordination of required support services;
- Improving performance and decreasing costs of an organization by the most efficient use of synergies amongst different services;
- Transparent data on service levels, which can be simply communicated to the end users.

### Scope of this study

This paper is conducted on rehabilitation of Stavanger rådhus and aims to show the importance of having facility management in this project by addressing the following research question:

> *"What are the benefits of facilities management in the renovation of Stavanger radhus?"*

It defines some different services which the facility manager provides for the project and it shows how practical is the existence of facility management for the rehabilitation of Stavanger rådhus.

## Research Method

This study was conducted through a literature review and an interview with the project manager of the case study, Stavanger radhus.

### Literature review

Owing to the Covid-19 restrictions, this study is more based on literature review. Different articles and term papers were reviewed about Facility Management, its benefits for various projects and the problems that lack of facility management may cause for renovation of Stavanger rådhus. The reviewed studies were obtained from literature search in Google Scholar, the available project documents in Stavanger municipality archive and project website, and the documents received from expertise involved in Stavanger rådhus project such as project manager of Stavanger rådhus project or the experienced professors. Overall, some relevant articles were collected and reviewed. All the used articles are listed in the reference part, at the end of this study. The used method for literature review of this paper was search stream, searching the key words and preparing table of findings and comparison table.

### Interview

In addition to the literature review, a semi-structured virtual interview was conducted with the project manager of Stavanger rådhus, Zakarias Chibssa. In the early stage of the research, some questions were informally asked from the project manager of Stavanger rådhus through email and the information received from him was also used as a source of information for this study. The interview guide was prepared by the author of this study, however, the project manager provided even more comprehensive relevant information and examples during the interview. Due to the Covid-19 situation, there was no possibility of having a site visit. Therefore, site analysis could not be included in this investigation.

## Findings

The findings section is divided into two parts: The results from the literature review and the results from the interview. It is worth noting that the interview with the project

manager of the case study includes more various items and examples which are mentioned in following sub-sections. The IBM's interesting practical approach is also mentioned here, named "Defining facilities management", in which FM is presented as the tools and services that support the functionality, safety, and sustainability of buildings, grounds, infrastructure, and real estate and includes maintenance and operations, emergency management and business continuity and energy management.

Results from the literature review

Building renovation is the process of fixing or replacing existing parts of the building to improve its performance, either to its original state or better (Ástmarsson et al., 2013). At the same time, building renovations also provide the possibility to change building design/lay-out, functions, architectural expression etc. to match users' current and/or future needs. Combining multiple disciplines introduces complexity to building renovations, and because of that, interdisciplinary expertise is required to deal with most renovation projects. Building renovations usually address several challenges in a specific property at the same time and therefore contribute with multiple benefits. Today, focus is mostly on energy-efficiency and deterioration, but there are also non-energy benefits of building renovations such as improvement of indoor climate, better daylight conditions, improved working spaces etc (Jensen & Maslesa, 2015).

Based on Stavanger Municipality's Climate and Environmental Plan for 2018-2030, some terms have been set for fossil-free construction sites by the municipality. A fossil-free construction site involves the use of emission-free machines and solutions and it opens up the use of sustainable bioenergy and biofuels. The rehabilitation of Stavanger Rådhus has high environmental and climate goals and will, among other things, be the region's first fossil-free construction site (Loddervik, 2021).

Fossil-free requirements in this project will contribute to the reduction of local Greenhouse gas emissions, says Zakarias Chibssa who is the project manager of Stavanger Rådhus. He also added that in addition to the great history of Stavanger town hall, it is going to be a smart building for the future and it will reflect the municipality's high environmental and climate aims. The previous sentence is just one of several important points that Zakarias Chibssa mentioned about the rehabilitation of Stavanger Rådhus (Loddervik, 2021).

Pursuant to the Regulation overview part in section 1.2 and the literature review, proper facilities management raises productivity, ensures safety criteria and helps all assets to be in good functioning form. The existence of FM has various targets and the most important ones are the promotion of flexibility and relevance, optimization of life-cycle performance and costs and also providing motivation, functional and safe workplace for the projects (ISO 41013:2017).

According to the existing literature, different studies and standards offer different definitions for FM and in most cases, they are depending on the organization and

they become more full-fledged by passing time. Some of these definitions, which are mentioned in Nor et al.'s study (2014), are presented in Table1.

*Table1: FM definitions. (Nor, Mohammed and Alias, 2014, p.5)*

| Author | Definition of Facility Management |
|---|---|
| Becker (1990) | FM is responsible for coordinating all efforts related to planning, designing and managing buildings and their systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapidly changing world. |
| Nourse (1990) | FM unit is seldom aware of the overall corporate strategic planning, and does not have bottom line emphasis. |
| NHS Estates (1996) | The practice of coordinating the physical workplace with the people and work of an organization; integrates the principles of business administration, architecture, and the behavioral and engineering science. |
| Alexander (1999) | The scope of the discipline covers all aspects of property, space and environmental control, health and safety, and support services. |
| Then (1999) | The practice of FM is concerned with delivery of the enabling workplace environment – the optimum functional space that supports the business process and human resources. |
| Hinks & McNay (1999) | ... common interpretations of FM remit: maintenance management; space management and accommodation standards; project management for new-builds and alterations; the general premises management of the building stock; and the administration of associated support services. |
| Varcoe (2000) | ... a focus on the management and delivery of the business "outputs" of both these entities (the real estate and construction industry); namely the productive use of building assets as workplace. |
| Nutt (2000) | The primary function of FM is resource management, at strategic and operational levels of support. Generic types of resource management central to the FM function are the management of financial resources, physical resources, human resources, and the management of resources of information and knowledge. |
| IFMA (2003) | The practice of coordinating the physical workplace with the people and work of the organization; integrates the principles of business administration, architecture, and the behavioral and engineering sciences. |
| BIFM (2006) | "Facilities management is the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities". |

In Table 2 are presented FM definitions, directions or approaches related to FM and renovation, developed after 2014.

*Table2: New direction in FM (by author, 2021)*

| Author | New FM approaches |
|---|---|
| Jensen et al (2014) | The job profile and key qualification of FM professionals is cross-functional and of a generalist nature. The profession uses knowledge and tools from a number of other professions and disciplines. Hence, the key question dealt with was partly the sector's general needs for new knowledge and new competences and partly the curriculum for a formal education in FM. |
| Alexander (2014) | Prioritization of different types of added value showed to be highly subjective and depends on the participant's position, experience and personal beliefs. Most prioritized values included the contribution of FM and CREM to the quality of life, the productivity of the core business, user satisfaction and sustainability. |

| | |
|---|---|
| ISO (2017) | Facility Management is often equated with Facility Services and is further divided into hard and soft services, but its real purpose should be “improving the quality of life of people and the productivity of the core business”. |
| Finch (2017) | Some of the current facility management practices appear to be failing many disabled users. Facility management needs to recognize that the part “management” presents a minimum standard; to run an inclusive business or an inclusive service they have to go beyond that. |
| Boge & Temeljotov Salaj(2017) | Knowledge about the different stakeholder groups’ preferences and differentiations makes it possible to develop FM strategies for increased value creation during early-phase planning of buildings. |
| Temeljotov-Salaj et al (2020, 2021) | Gaining better insight in the needs of cities and citizens, and correspondingly the ability to develop processes, services and business models that better fit people’s needs is a task for urban facility management in the neighborhood. |
| | Facility managers can enhance the level of participation, by building on variables such as trust, efficacy, competence, responsiveness and legitimacy. |
| Alfalah & Zayed (2020) | Sustainable facility management (SFM) has a positive effect on the three main pillars of sustainable buildings: economic, environmental, and social benefits, thereby adding value to companies, organizations, and governments that integrate SFM into their vision. |
| Vukmirovic et al (2021) | Having in mind the complexity of the construction process and the domain of IAQ, FM with its scopes and activities have the potential to accompany all phases, including the preparation of short-term and long-term FM maintenance plans. |
| | In the contract phase, FM could control purchasing, contracting and negotiation processes to achieve adopted building and quality performance targets. |
| Jowkar et al. (2021) | The role of Urban FM has a potential to prepare the road in meeting environmental targets and SDGs, but it requires further formalization within municipalities and neighborhood structures, to gaining support among citizens for sustainable building renovation developments. |

One of the important things for maintainability and raising the attainability of reaching sustainable aims in projects is promoting the connection of design to facilities management (Whyte et al., 2016; Fedoruk et al., 2015 and Forcada et al., 2015). In other words, proper facilities management increases productivity, guarantees safety criteria and helps all assets to be in good functioning order. Facility Management can cause a more cost-effective performance during the implementation of projects and decrease stress and pressure. It can also extend the lifespan of projects’ assets and improve productivity.

By appearing the fast-paced Fourth Industrial Revolution and as the technology becomes more complex and the buildings become smarter, the importance and necessity of having effective preservation and control of the facilities become clearer (Karssing, 2019). According to the previous sentence, the need of having facility managers in the projects, who are responsible for making sure that everything is done the way that it should be done, become more obvious. They are also responsible for increasing the efficiency of the performances in projects and cost-saving. In different organizations, facility managers’ roles vary but their main duties are taking care of the maintenance of the buildings, making sure that the functions are following legal requirements, and also paying attention to the health and safety standards during the life cycle of the projects (Karssing, 2019).

Results from the interview

According to the interview with the project manager of Stavanger rådhus, various points were mentioned which have shown how essential is the existence of FM for this specific project and similar ones. His opinion is that FM plays an extremely big role in the projects in most cases, due to the reasons of short term project manager's tasks, focusing on the project management for some years and finishing with the work after the delivery date. As a result, the building needs to have facility managers who are usually people with lots of experience that know for instance, what kinds of floor type or various materials work better in different parts of the projects by its side.

In all the projects various teams of engineers, designers, architects, administrators, and so on work collectively in order to deliver the case in the most desirable way. In this situation, there will be some disputes among the members of the particular organization about different matters. For example, the main architect and the interior architect might have some different thoughts about the product which they should use for the specific element of the building. In this case, the project manager does not usually have any preference or even he/she is not experienced enough to make the decision. Therefore, the project manager coordinates with the facility manager to make the final decision in these kinds of states and pick the most suitable option based on his/her experiences.

Facility managers do not work on only one building and in most cases, they facilitate several projects at the same time. Therefore, they are experienced and skilled people and it makes project managers' job much easier for making decisions regarding facilities of the buildings. For instance, in the technical department, there are different systems like lightning or temperature systems that demand proper maintenance. Facility managers are aware of different types of these kinds of systems. They know which one is the most suitable one for the specific parts of the building, they know how to change them in case of breaking or damaging, they know where to buy them and how to set them and so on. As a result, project managers share facility manager's opinions, and then the decisions are made based on those points of view.

One of the remarkable things that project managers are struggling with is time management. Most of the time there are so many things that should be done in a short period of time and sometimes several unexpected things come up during the implementation phase of the projects which put more pressure on project managers and they should figure out how to manage and finish the work by deadlines. In these kinds of situations, the importance of having facility management becomes more apparent. A skilled facility manager can help the project manager to make the decisions faster and more accurately and the project manager can use the facility manager's knowledge and experience in order to find the solution for the upcoming issues and challenges in a shorter period of time. In this way, the scheduling of the project can be more controllable.

In most cases, it is a little bit scary for people to go through new ideas or plans and they prefer to do things in the way that they did before and in the way which they have experienced. The rehabilitation of Stavanger rådhus has very high ambition

regarding new technology. On the other hand, Facility managers prefer to do the specific functions in the way they had experienced. Therefore, there was a big challenge for the project manager to convince facility managers to adapt themselves to the new technology. But as the aim of using new technology was much more valuable for the project, then the project manager had to make the decision about the way of managing this issue. Offering at least one week of training in the specific fields for the facility managers was one of the ways which project manager came up with for convincing and encouraging facility managers to reconcile themselves to the new technology. This function has been done by having some courses with product developers and they shared the experiences that they had in previous similar cases by suitable presentations for the facility management team.

Zakarias Chibssa, the project manager of Stavanger rådhus, has mentioned a challenge that has happened in the rehabilitation of Stavanger rådhus and it shows how effective the existence of facility management is for this project. For some rooms in the main building, there was a need to block the sunlight from entering the room. There were different ways for solving this problem such as blocking the sunlight by setting screens inside, outside, or integrating the screen through window glasses. The project manager has a successful experience from another project about this issue. In that case, he used a big screen outside and he decided to use the same solution for this project as well but the facility manager of Stavanger rådhus changed Zakarias' idea. Strong winds are blowing in Stavanger and the big screens outside will be damaged very often. Moreover, the rådhus building is located in Stavanger city center and the way in which the building is placed goes upwards and the height difference between the lower part and the upper part is approximately around 13 meters. Therefore, it is not simple to get access to the walls and windows and if the screen cracked or broke, it would be very difficult to repair it. Based on the discussion that the project manager and facility manager had about this crisis, they decided to integrate the screen through window glasses and the facility manager's opinion was so helpful in this case and this decision helped to avoid possible difficulties of fixing screens. The project manager of Stavanger rådhus believes that the role of facility management was so beneficial in the way of blocking sunlight for the building's rooms.

Stavanger municipality hired facility managers and they manage up to ten different buildings at the same time and they will stay with the project as long as their work will be changed in some points. This will be applied for the rehabilitation of Stavanger rådhus also. The project manager will stay with the project until 2024 but the facility manager will stay by its side much longer.

All in all, based on the last part of Zakarias Chibssa's speech in the interview, he was so satisfied with having the facility management by his side in the rehabilitation of Stavanger rådhus and he believes that the advantages of the existence of facility management are much more than its disadvantages.

## Discussion

This study is intended for holistic assessment of *how important is existence of Facility Management in building renovation projects*.

According to the practical findings in this study, facility managers' responsibilities are not limited to completing the implementation phase of the project, so they need to be involved in the project from early planning phase on, as stated by Haddadi et al, (2016), Boge &Temeljotov Salaj (2017). Building needs to operate well during its life cycle and different people with various positions are going to work in Stavanger rådhus in different periods of time. Therefore, there will be a high possibility of some technical issues occurring in different systems or facilities of the building such as the brightness system, temperature system, used materials, and so on. The most expert people who know the building better than any others are the facility managers of the building because they were with the project from the beginning and they know about all the facilities which are used in different parts of the building in detail. As a result, the importance of the existence of FM for the project will become more transparent according to the maintenance functions of the building. Similar findings are also discussed in the previous studies (Hinks& McNay, 1999; Karssing, 2019; Finch, 2017) which all have a special emphasis on the maintenance aspect of the buildings and they focused on how helpful can be the existence of proper facility management to maintain the building in an ideal level for a longer time.

The review shows that FM is regularly likened with facility services and its genuine target ought to be "improving the quality of life of individuals and the efficiency of the center business" as it is mentioned in ISO 2017. Moreover, sustainable facility management encompasses a positive impact on the three primary columns of sustainable buildings: financial, environmental and social benefits, subsequently including esteem to companies, organizations, and governments that coordinated SFM into their vision (Jensen et al., 2013; Alfalah & Zayed, 2020). Besides, facility managers can improve the level of cooperation, by building on factors such as trust, efficacy, competence, responsiveness and legitimacy and an efficient FM can help the organization to gain better way of understanding within the needs of cities and citizens, and correspondingly the capacity to create and improve processes, administrations and trade models that superior fit people's needs (Salaj & Lindkvist., 2021, Jowkar et al. 2021).

All in all, active and sufficient FM is essential to the performance of any organization, no matter the dimension and scope. This will lead to practical processes that are not often disrupted by multiple series of technical challenges. Good facilities management and maintenance can also deliver greater adaptability, flexibility, and sustainability for the organization. Outsourcing facility maintenance is a recommended option for companies without internal facilities maintenance expertise as it can demonstrate both more effective and more cost-efficient. Similar conclusions are also have been found in previous studies like Karssing (2019).

## Conclusion

The purpose of this study was to show how beneficial is the presence of facility management for the rehabilitation of Stavanger rådhus and similar projects. This investigation was conducted through a literature review and a semi-structured interview with the project manager involved in the rehabilitation of Stavanger rådhus. The aim of this study was to show how practical value can FM make for the

rehabilitation of Stavanger rådhus and in which way it helps the project manager to make the decisions and solve the upcoming issues more accurately. The results from the literature review and the interview confirmed the advantages of having FM in the renovation of Stavanger rådhus. The examples explained by the project manager of the case showed how helpful the facility manager's knowledge and experience was for the whole project.

It is also shown in this work that having proper management for the rehabilitation of buildings during the implementation phase of the projects is as important as the way of management in the maintenance phase of it. Therefore, the existence of efficient FM is so essential for each project, building or organization. The absence of an experienced facility manager in the projects can lead to irreparable consequences and make the project manager's work much more difficult. Managing the facilities and premises will make maintenance issues less and far between, helping to save on expenses significantly. It also helps to focus more on prevention rather than treatment due to detecting the problems and dealing with them before they occur. Moreover, having accurately managed facilities are also essential for saving on costs.

Due to COVID situation, there were two limitations for this study, lacking the site visit and lacking interviews with more experts involved in the project. The project manager of Stavanger rådhus shared so much practical information and examples in the interview, and the rest was analyzed by literature review.

The new directions show a huge potential for increasing sustainable building renovation by involving various stakeholder groups in decision making process throughout the project period. The recommendation is to analyze a facility manager's potential to become an intermediator between public, private and people stakeholder gorpus, and a facilitator between experts involved in planning and construction phase, and end-users of the renovated buildings.

## References


Alexander, K. (2014). *EuroFM Research Papers Healthcare FM View project FM added value View project*. https://doi.org/10.13140/2.1.2537.2963

Alfalah, G. & Zayed, T. (2020). A review of sustainable facility management research. *Sustainable Cities and Society*, *55*, 102073. https://doi.org/10.1016/J.SCS.2020.102073

Ástmarsson, B., Jensen, P. A., & Maslesa, E. (2013). Sustainable renovation of residential buildings and the landlord/tenant dilemma. *Energy Policy*, *63*, 355–362. https://doi.org/10.1016/J.ENPOL.2013.08.046

Baumeister, R. F., & Leary, M. R. (1997). Writing Narrative Literature Reviews: *Review of General Psychology*, 1(3), 311–320. https://doi.org/10.1037/1089-2680.1.3.311

Boge, K., Temeljotov Salaj, A. (2017) Practice vs theory : short-term financials trumps long-term value creation. *Journal of corporate real estate*, 19(3), 186-204, doi: 10.1108/JCRE-06-2016-0022.

CEN (2006), EN 15221-1 Facility Management – Part 1: Terms and Definitions, CEN

Finch, E. (2017) Introducing inclusive design. available at: www.FMworld.co.UK/features/feature.articles/introducing-inclusive-design/

Haddadi, A., Temeljotov Salaj, A., Foss, M. & Klakegg, O.J. (2016) The concept of value for owners and users of buildings : a literature study of value in different contexts. *Procedia : social & behavioral sciences*, 226, 381-389. doi:10.1016/j.sbspro.2016.06.202.

Hinks, J. & McNay, P. (1999). Management-by-variance as a facilities management performance assessment technique (summary only). *Facilities*, *17*(7–8), 230. https://doi.org/10.1108/02632779910270177

IBM Facility Management. "Defining facilities management." Reached on 21.July.2021. https://www.ibm.com/topics/facilities-management.

International Facility Management Association (2003). Facts about the International Facility Management Association. Retrieved from www.ifma.org.

International Facility Management Association. (2009). Global job task analysis. Retrieved from https://www.ifma.org/professional-development/global-job-task-analysis

International Facility Management Association. (2009). Strategic facility planning: A white paper on strategic facility planning.

International Facility Management Association. (2011). Exploring the current trends and future outlook for facility management.

ISO 41013:2017 - Facility management - guidance on strategic sourcing and the development of agreements, (2017).

Jensen, P.A., Van der Voordt, T. J., Coenen, C., Sarasoja, A.L., van der Voordt, T. (2013). How Can Facilities Management Add Value To Organisations As Well As To Society? *Ways to Study Architecture in Use as a means to develop decision support and guidelines project 510 PUBLICATIONS 2,553* https://www.researchgate.net/publication/236973958

Jensen, P.A., Andersen, D., & Rasmussen, B. (2014). *Future research agenda for FM in the Nordic countries in Europe*. https://doi.org/10.1108/F-09-2012-0071

Jensen, P. A. & Maslesa, E. (2015). Value based building renovation – A tool for decision-making and evaluation. *Building and Environment*, *92*, 1–9. https://doi.org/10.1016/J.BUILDENV.2015.04.008

Jowkar, M., Temeljotov-Salaj, A., Lindkvist, C.M. & Støre-Valen, M. (2021) Sustainable Building Renovations: Barriers and Potential Motivations. *Construction, Management and Economics*, in press.

Karssing, S. (2019). What Are The Roles And Responsibilities Of A Facilities Manager. Reached on 21.July.2021. https://limblecmms.com/blog/facilities-manager-roles-and-responsibilities/#:~:text=In%20general%2C%20facilities%20managers%20are,a%20strategic%20and%20operational%20level.

Loddervik, C., (2021). Now the renovation of the town hall begins. https://www.stavanger.kommune.no/nyheter/na-starter-renoveringen-av-radhuset/

Nor, N. A. M., Mohammed, A. H., & Alias, B. (2014). Facility management history. *International Journal of Facilities Management*, 5(1).

Temeljotov Salaj, A., Gohari, S., Senior, C., Xue, Y. Lindkvist, C. (2020), "An interactive tool for citizens' involvement in the sustainable regeneration", *Facilities*, Vol. 38 No. 11/12, pp. 859-870. https://doi.org/10.1108/F-09-2019-0099

Temeljotov Salaj, A. and Lindkvist, C. (2021), Urban facility Management, *Facilities*, Vol. 39, no. 7/8, pp. 525-537. https://doi.org/10.1108/F-06-2020-0078

Vukmirovic, M., Salaj, A. T. & Sostaric, A. (2020). Challenges of the Facilities Management and Effects on Indoor Air Quality. Case Study "Smelly Buildings" in Belgrade, Serbia. *Sustainability 2021, Vol. 13, Page 240*, *13*(1), 240. https://doi.org/10.3390/SU13010240

Whyte, J., Lindkvist, C. & Jaradat, S. (2016). Passing the baton? Handing over digital data from the project to operations. *New Publisher: Engineering Project Organization Society*, *6*(1), 2–14. https://doi.org/10.1080/21573727.2015.1115396

Wiggins, J. M. (2014). *Facilities Manager's Desk Reference*. John Wiley & Sons.

"Climate and environmental plan 2018-2030." (2021). Reached on 21.July.2021. https://www.stavanger.kommune.no/renovasjon-og-miljo/miljo-og-klima/klima--og-miljoplan-2018-2030/.

# Strategic property development and maintenance strategy must be seen in context in order to achieve sustainable development of existing buildings

**Svein Bjørberg**

**Robin Sæterøy**

**Veronica Aa Miljeteig**

Multiconsult, Norway
svein.bjoerberg@multiconsult.no

## Abstract

Buildings must satisfy their purpose over time and be kept in shape through maintenance and upgrading / rebuilding where demographic development also plays an important role. One strategy must not be seen in isolation from the other.

Keywords: maintenance, facility management, life cycle social needs, well-being.

## Introduction

The intentions of the government White Paper "Good buildings for a better society" (Stm 28: 2011-2012) will never be achieved if we do not take the maintenance and development of the buildings seriously. The need for buildings, with associated outdoor spaces, is not static over time. The same applies to the services that take place in the buildings, such as teaching in schools and kindergartens, elderly care, cultural activity and commercial buildings. Everything is dynamic and there are always changing space- and redevelopment needs as a result of changes in demographics, and the organization and content of the buildings purpose/function.

Users, the services that take place and visitors, should all feel satisfied in their stay and use of the buildings. Satisfaction is the balance between economics, social and environmental conditions, the three concepts of sustainability. What can destroy the satisfaction is the accumulated lack of maintenance, scarcity of space and lack of adaptability of the buildings. The concept of sustainability for buildings can be formulated as "A building that satisfies its function over time to the lowest possible use of resources". The words "function" and "over time" then become significant.

Strategy is an important part of all companies' management basis. Strategy is about establishing long-term goals and measures to achieve these goals. In establishing

a strategy, thorough investigations and analyzes must therefore be made so that goals and measures correspond with the organization's vision or its social mission. This is also true for real estate strategies, which are separate management documents subject to companies' overall strategy.

For most people, real estate is an asset to the business. In property management, there is often talk of very large values that must be managed with their own professional knowledge, often separately from the core business in general in their own internal organizations. The property management then functions as a supplier of property to the core business with its own goals, tasks and strategies.

The real estate management strategy should clarify performance targets for the building portfolio, including a description of the RE management organization with division of responsibilities and roles and cash flows, so that the current building and its activities are transferred to a future situation based on demographics, organization of services and content. But restructuring requires time, the real estate strategy must be seen in a 20-30-year perspective. In order to maintain both the use and capital value (satisfaction for all users and owner), the buildings must be maintained and developed.

The starting point for the annual budgets for maintenance will always be the condition of the individual building parts as a result of the stresses to which they are exposed from both users and the environment. Poor condition affects HSE requirements and well-being, which in turn can affect the core business's performance. Poor design of the buildings which, in the event of a change in the function of the building or changed ways of performing the services, also leads to a reduction in the core business's performance.

Overall, it can be said that the **property management strategy** must take care of the development needs for areas and functionality in the long run, while the **maintenance strategy** must take care of values and the users' ongoing satisfaction. As the maintenance strategy and its ambition (number and size of maintenance measures) as well as prioritizing between maintenance measures cross-portfolio will rely on the future plans for each individual building, compliance with a long-term strategy is imperative. For instance, you should not change the windows in one year, only to rebuild the scaffolding for a façade rehabilitation the next year. Or refurbish the interior surfaces, only for the building to change users and function and need a new rebuild a few years later (electrical and HVAC).

**Real estate management strategy**

Within real estate strategy, in addition to the word itself, there are a number of real estate professional concepts that need a clear definition:

- **Suitability** describes the quality of use of buildings, which is about how buildings can help organizations to carry out their services in the best possible way.
- **Real estate management strategy** includes clarification of measurable performance targets for the building portfolio, including a description of the organization with division of responsibilities and roles as well as cash flows.

- **Adaptability** describes buildings' ability to change for new requirements. Often divided into:
    - **Flexibility**: The ability to change the area plan (eg: from cell office to open landscape)
    - **Generality**: The ability to change use (eg: from school to senior center)
    - **Elasticity**: The ability to change volume (eg build on / tear or tear parts)
- **Development plan** includes rebuilding and upgrading of the individual buildings in the portfolio.
- **Total development plan** includes, in addition to development plan, demolition and new construction.
- **Demography** describes the development within population growth and composition.

Sustainability requires a balance between economy, environment and social aspects. This provides satisfaction for users, ie individuals who have their daily stay in the building (workplaces), the services that take place (logistics and sufficient area) and visitors (orientation). What destroys the satisfaction of use is the accumulated need for maintenance and lack of adaptability.

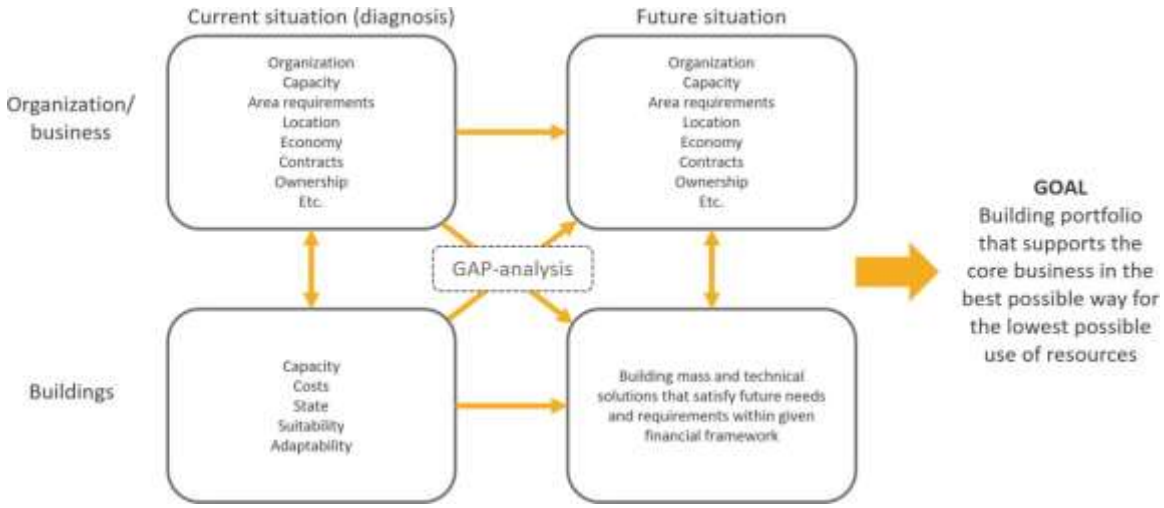



*Figure 1: Analysis framework (Ref. Multiconsult)*

The process leading to a finally defined property management strategy can be extensive to ensure anchoring in all parties involved, good cooperation between those responsible for the individual service areas and property management. Basic information from the current situation together with demographic development will be an important starting point in this work. The implementation process can be divided into two main pillars; What do we do (define goals, map the current situation, define the future situation and external drivers, evaluate and decide on solution alternatives and design strategy documents with defined goals). And 'How do we do that?' (Process from start-up meeting, via document studies, workshops, calculations and analyzes to decision-making process). The framework for the analysis can be presented as shown in Figure 1.

Data from the analysis will make it possible to see which buildings are not suitable for further use (demolished or find new use), which can be rebuilt as they are adaptable and any need for new buildings. To make visible the connection between suitability and adaptability, the results will be plotted in the viability model (Fig. 2).

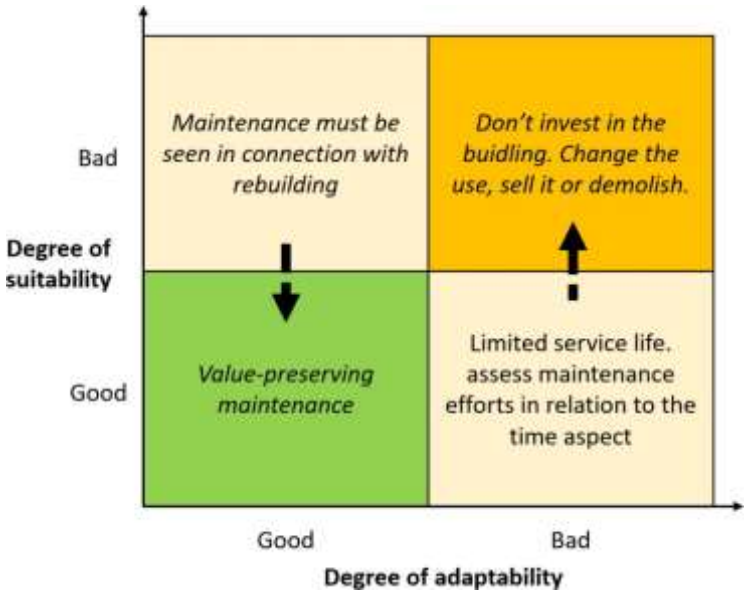



*Figure 2: The viability model. The connection between functionality / suitability and adaptability. (Source: Multiconsult)*

The final picture will be affected by external change drivers as shown in Figure 1. If we consider demographics, the mean scenario will indicate that we in Norway will pass 6 million people in 2050, ie a population growth of about 600,000 more from 2020 to 2050, cf. figure 3.

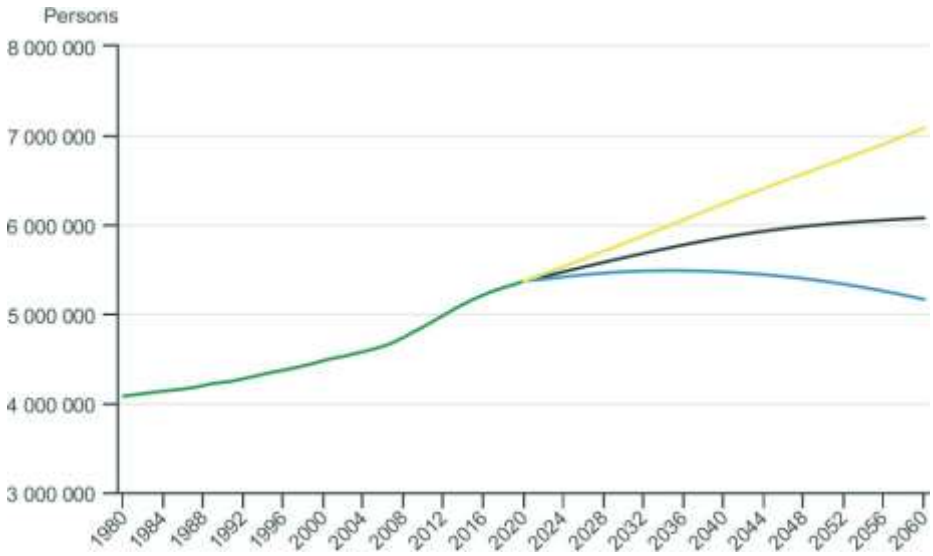



*Figure 3: Projection of the population in Norway until 2050 (Source: Statistics Norway)*

With key figures on land use per inhabitant for municipal and county municipal buildings, homes and hospitals, etc., we can easily identify the need for new areas in total, ie, for example, we need for hospitals about 550,000 new m2.

Norwegian municipalities have an average of about 60% school buildings (school, sports and cultural), 20% health buildings (nursing homes and primary health buildings), 10% housing and 10% offices and other. The need for school and health buildings in the future is therefore closely linked to the demographic situation in the individual municipality. Demographic trends include not only a change in the population, but also the age composition. Some will increase the population; some will maintain, and some will decrease in the number of inhabitants. For the first group, there will be a need for all types of areas, but for the latter two, the age center of gravity will change with the need for more space for elderly care, less for schools.

Overall, such an area model will provide the necessary information to see opportunities and challenges in the future and contribute to a better decision basis for development plans in the property strategy.

**Maintenance strategy**

Within maintenance strategy, there are also a number of *maintenance professional* concepts that are important, such as:

- **Acceptance level** is a predefined requirement for condition before maintenance and / or replacement measures must be implemented to prevent the value of the building / building parts / objects from deteriorating significantly.
- **Ambition level** is the condition you aim to maintain for the building stock over time. The level of ambition is higher than the level of acceptance.
- **Development measures** involve replacing / inserting a building part / object and at the same time changing the function of the building (rebuilding), for example upgrading the ventilation system to zone control, re-insulating, installing an elevator in a building without an elevator, installing sprinkler systems in a building without this, etc.
- **Maintenance needs** are an amount in kroner at current value that estimates the cost of maintaining and / or replacing a component or object within a specified period of time.
- **Maintenance backlog** is an amount of money in net present value that estimates the cost of bringing a component, an object or a portfolio to a defined target image.
- **Value-preserving maintenance** contributes to the development of standards over time due to replacement, but the functionality is unchanged.
- **Value-adding maintenance** development of standards (value-preserving maintenance) and functionality over time.
- **Degree of condition** as a concept is defined in Norwegian Standard 3424: 2012 Condition analysis of buildings, which have four degrees of condition (0, 1, 2 and 3 where 0 is like new and 3 is unacceptable). Degrees of condition are normally used for references to the technical condition of buildings with the definitions from the standard.

The relationship between acceptance level, preventive maintenance, value-preserving maintenance and value-increasing maintenance is illustrated in Fig.4.

*Figure 4: Maintenance strategy as a basis for asset management.*

The purpose of a maintenance strategy is to prioritize the right measures for the right buildings in order to maintain the value, ensure the desired use and comply with any protection regulations. For buildings in general, a value-preserving maintenance should be carried out as a minimum in order to maintain the value of the building stock. This includes maintaining and replacing building parts / objects when these have been "used up" and have ended their service life. Consequences of the strategy will provide good asset management through maintenance and budget plans for value preservation, see Figure 5.

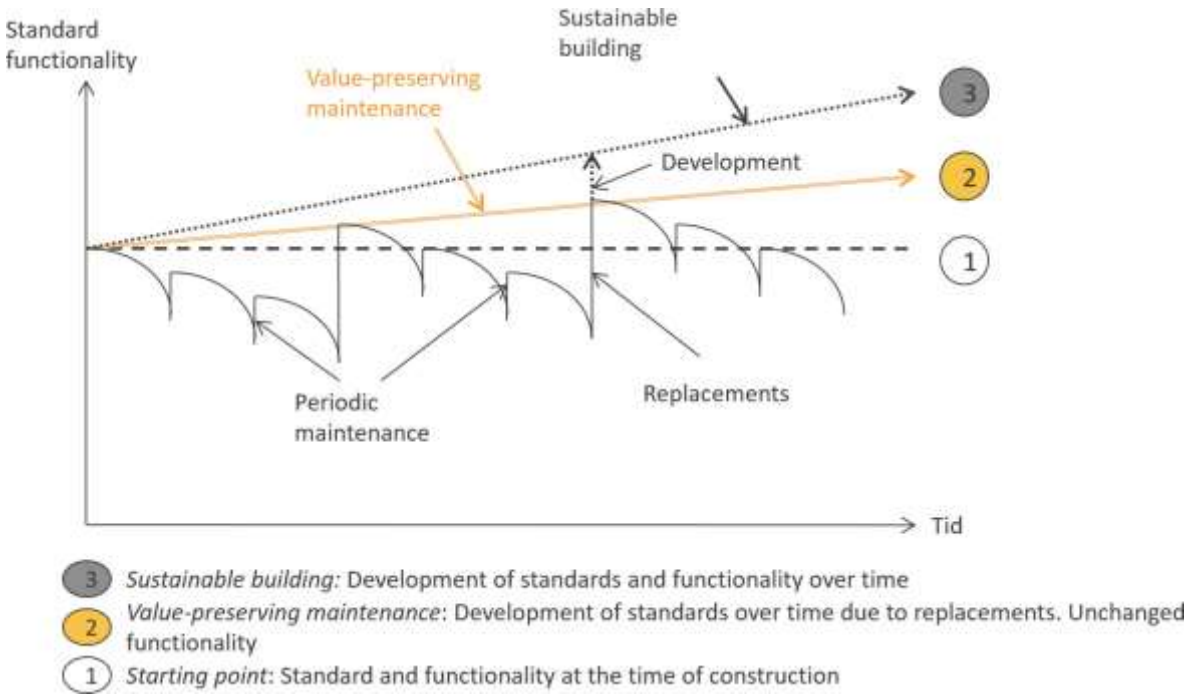



*Figure 5: Principle sketch on value-preserving maintenance (Source: Multiconsult)*

The choice of maintenance strategy, including the level of ambition and acceptance level for the technical condition, will be decisive for specific measures in the maintenance plan. A good strategy should be anchored in overall goals for building management, which are further broken down into quantitative requirements based on degree of condition in accordance with the Norwegian standard NS 3424 «Condition analysis of buildings». The systematics is generic and is used for technical condition, suitability and adaptability etc. across several building types.
The level of ambition for the technical condition can thus be defined quantitatively and entered as part of the maintenance strategy. In addition, weighted condition grades (weighting of all condition grades (normally 18 for a building using the multiMap method), to a weighted condition grade per building) can easily communicate the development of condition for the entire building portfolio, per building type, per building and building part.

It is assumed that laws and regulations have been complied with and that the building mass is in generally good condition. An overall weighted technical condition can be within the level of ambition and still have maintenance needs and lag for some objects. An ambition level of 1.0 can be achieved, but still contain both components with TG 0, TG 2 and 3. A more complex target picture can also include ambition that TG = 3 is not accepted for some components. In this way you get a quantitative strategy for maintenance. The quantitative requirements can be varied, especially the weighted one, for different building types.

The essential thing is that the owner, together with the property manager, defines, through formal decisions, an acceptance and ambition level that is realistic from the desired standard of the building stock, as well as available funds. Overall, there is then a basis for prioritization in a maintenance plan. Thereby, the need for maintenance can be described and budgeted for the coming 5-year period.

**Maintenance lag**

The terms described in the sections above are, of course, closely related. Maintenance measures according to an adopted strategy is necessary to maintain "well-being", ie the balance between finances, social and environmental conditions, for people who have their workplace in the building. Lack of maintenance and suitability has a negative effect on well-being ("well-being" as the balance between the environment, social conditions and the economy), as shown in Figure 6.

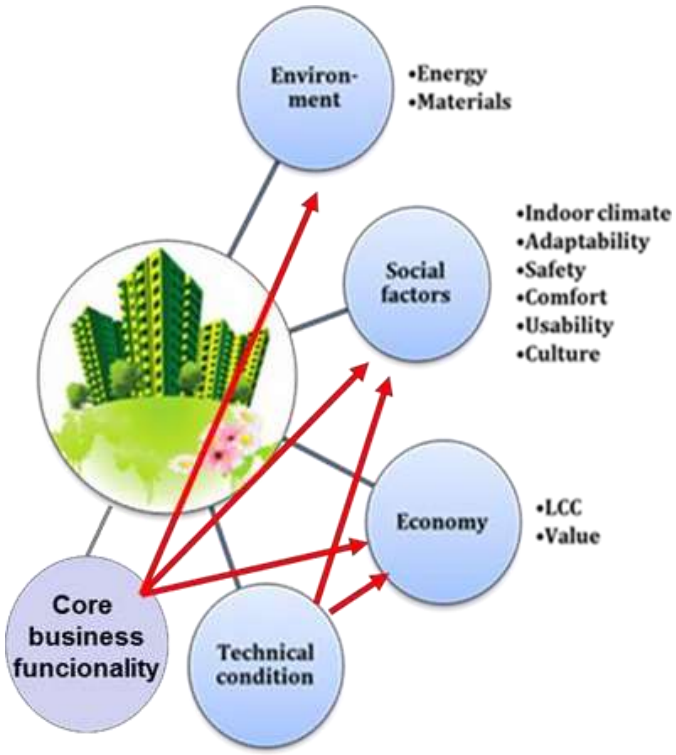



*Figure 6: Negative deviation in technical and condition for suitability influences «Wellbeing», (Source: Multiconsult)*

In summary, the maintenance backlog: The gap between goals / standards is adopted in the maintenance strategy and the actual condition when appropriations

are lacking. This missing amount should then be presented as a liability in the balance sheet.

## Conclusion

For protected buildings, according to the National Heritage Board, it is better to maintain than to repair, better to repair than to replace. This principle should apply to all buildings. In this way, we increase intervals for replacements and thereby the lowest possible CO2 footprint. But the maintenance efforts must also be seen in connection with the building's development potential to meet the future requirements from the users. A real estate strategy can help to concretize a business' ambitions and goals with real estate. Development plans and maintenance plans operationalize the strategy. By maintaining a link between the property strategy and maintenance plans, it will help the buildings to remain good over time, which is both sustainable and profitable.

### Refrences


Bjørberg, S. (2007). Life Cycle Cost (LCC) in Norway Experience and State of Art. *Proceedings - Maintenance Management 2007 - Third International Conference on Maintenance and Facility Management*. Rome, Italia: CNIM - Comitato Nazionale Italiano per la Manutenzione 2007; pp.25-34.

Bjørberg, S. (2009). Public Buildings - From Decay to Model of Excellence. I: *Maintenance Management Conference - Fourth International Conference on Maintenance and Facility Management*. Rome, Italy: CNIM - Italian National Committee for Maintenance 2009 pp. 25-30.

Bjørberg, S., Larssen, A.K, Boge, K., Temeljotov Salaj, A. (2017) Contribution of Facilities Management to Value creation. *Journal für Facility Management ,* Volum 14. pp. 7-21.

Boge, K., Temeljotov Salaj, A. (2017). Practice vs theory: short-term financials trumps long-term value creation, Journal of Corporate Real Estate. vol. 19 (3), pp. 186-204. doi: https://doi.org/10.1108/JCRE-06-2016-0022

Bygg 21, “10 kvalitetsprinsipper for bærekraftige bygg og områder” (2018) (“10 quality principles for sustainable buildings and areas”)

Kristl, Ž., Temeljotov Salaj, A., Roumboutsos, A. (2019). Sustainability and universal design aspects in heritage building refurbishment. Facilities, doi: https://doi.org/10.1108/F-07-2018-0081

Kristl, Ž.; Senior, C.; Temeljotov Salaj, Al. (2020). Key challenges of climate change adaptation in the building sector. *Urbani Izziv* 2020 ; 31(1) pp. 101-111. doi: 10.5379/urbani-izziv-en-2020-31-01-004

Lund, O.B., Haddadi, A., Lohne, J., Bjørberg, S. (2016). Sustainable Planning in Refurbishment Projects – An Early Phase Evaluation. *Energy Procedia* 2016 ;Volum 96. pp. 425-434.

Senior, C.; Salaj, A.T.; Vukmirovic, M.; Jowkar, M.; Kristl, Ž. The Spirit of Time—The Art of Self-Renovation to Improve Indoor Environment in Cultural Heritage Buildings. Energies 2021, 14, 4056. https://doi.org/10.3390/en14134056

Stm 28:2011-2012 “Gode bygg for eit betre samfunn», (White paper 28 «Good buildings for a better society»)

Stm 15; 2017-2018 «Leve hele livet», (White paper 15 «Live your whole life»)

# Review of hospital management in Turkey and around the world in terms of principles of facility management, Ankara province case study approach

**Yeşim Aliefendioğlu Tanrıvermiş**

**Sinan Terzioğlu**

Department of Real Estate Development and Management
Faculty of Applied Sciences Ankara University, Turkey.
aliefendioglu@ankara.edu.tr
sinan.terzioglu@ankara.edu.tr

## Abstract

The delivery of healthcare worldwide has changed significantly over the past twenty-five years. Governments have recognized the need to improve the health services of their citizens and to be sustainable in order to achieve social and economic success in their countries. The World Health Organization (WHO) is putting forward approaches for people to have access to quality and adequate health care. Within the framework of WHO's approach, states have started to attach even more importance to hospitals in order to create healthy societies. Within this framework, hospitals have been accepted by the states as health facilities in a broader and more comprehensive definition and have started to develop strategies for this. Hospitals differ from other facilities in the manufacturing sector. Hospitals are open twenty-four hours a day, seven days a week, producing and providing complex and interdisciplinary services for these facilities that have their own characteristics. There are different approaches in the health systems of the countries, these differences are related to the level of development of the countries on the one hand and closely related to the cultural development of the people in those countries. This reveals differences in the scope of health systems and people's expectations of health services. Therefore, each country has its own approaches in the health system. Facility management is managed both reactively and proactively. Short-term improvements are carried out to protect existing services and, if possible, to improve them. Longer-term strategic business plans should be made about the changes the organization may 2 face in the future and how they will affect the existing service. Facility management should also act within the framework of the strategic plan and design the future from where they are today. Health (Hospital) facilities need a conscious and political resource-providing strategy to determine what their needs are. Such organizations use on-premises or out-of-house resources to run the service outside of their core business. Facility management is an integrated process and it is necessary to focus on many points at once. The main task of the organization is to master the performance levels in all areas in which it interacts and be able to make a collective improvement. The aim of this study is to determine the level of satisfaction of hospital facility management and to reveal the expectations of demographic variables from the facility management service level.

In this way, the increase/decrease of the quality of service of the health institution has been determined. In recent years, hospitals act as the health production industry when evaluated in the field of facility management. This increases the importance of better coordinated treatment and more efficient hospital management around the world. For this goal to be realized, the discipline of Health Facility management, together with the existing structured environment, is emerging day by day. Within the scope of the study, a survey titled “Hospital facility management satisfaction level depending on demographic structure" was conducted for data collection purposes. The survey was carried out in selected hospitals in Ankara Province. In the first part of the survey, participants were asked about their demographic characteristics as arguments. In the second part of the survey, scales consisting of scaling questions using dependent variables and addressing issues related to hospital facility management satisfaction were used. The socio-demographic status of the hospital managers, employees and patients who participated in the study and the current characteristics of the hospital were evaluated. In this research, facility management satisfaction level was determined based on selected hospital examples in Ankara Province. As a result of this study, it is seen that the level of satisfaction of the facility management is low as a result of the current management style and understanding of the hospital. Among the participants in our survey, it was observed that the level of expectation of both employees and patients/customers could not be met. It is understood that the reason for this is that the importance of the current understanding of hospital facility management is not adequately understood and the necessary organization cannot be established.

Keywords: Facility Management, Hospital Management, Healthcare Facility Management.

## Introduction

Healthcare delivery has changed significantly over the past twenty-five years worldwide. Governments have realized that in order to achieve social and economic success in their countries, they need to improve the health of their citizens and that this situation must be sustainable. It is thought that only a healthy population can develop the economies of countries. In other words, working people can only contribute to the economy when they are healthy. In parallel with this situation, the World Health Organization has introduced the universal health coverage approach in order to ensure that people can access quality and adequate health services, to ensure that everyone receives the quality service they need and to be protected from health threats without financial difficulties.

Countries have begun to give more importance to hospitals in order to create healthy societies, and within this framework, countries are trying to accept hospitals as health facilities and develop strategies for this. However, there are 3 factors that distinguish hospitals from other facilities. The first of these is that hospitals are open 24 hours a day, seven days a week, the second is that hospitals produce and provide complex and interdisciplinary services, and the third is the possibility that a small mistake can cost human life. These factors create conditions that have a more complex set of objectives and exceptional operating conditions than other

businesses within the scope of facilities management, many of which are driven by a business vision of profit.

Although patients are well cared for in most health systems of developed and developing countries, the coverage of healthcare systems differs between countries in terms of people's expectations and satisfaction with healthcare services. These changes and expectations bring additional costs to health systems. This situation has caused the formation of unique conditions in the health systems of each country, and thus the differentiation of the duties and responsibilities of the administrative and technical personnel. Since qualified personnel and trained personnel choose less tiring and economically advantageous areas, it has become difficult to find administrators and personnel specialized in healthcare FM. Thus, the emergence of a qualified manager and personnel shortage has become one of the most important problems of the operation.

When hospitals are evaluated in the field of FM, they act like the health production industry. While an increasing number of patients are treated every year, the bed capacity in hospital facilities remains the same, which significantly reduces the time allocated to patients and leads many patients to provide outpatient services. As a result, it increases the importance of better coordinated treatment and more efficient hospital management in general. The discipline of FM has emerged from growing pressures for the more economical operation of the built environment (Shohet and Lavy, 2004).

Approximately 20-30% of hospital operating costs are related to core (non-medical operational service) FM expenses and not directly related to healthcare services to heal patients. In other words, all services in the hospital can be considered as non-core processes and defined within the FM process. (Lennerts et al., 2003; Lennerts et al., 2005.

The understanding of healthcare FM has emerged as a new approach in the world since the 2000s. In this context, in parallel with the developments in the world, the acceptance of hospital management as a facility in Turkey and the search for change in the understanding of the management of this integrated facility are intensifying. Today, the management approach in healthcare facilities focuses on the clinical treatment of patients and as a result, the importance of support services in the healthcare facility cannot be understood. From this point of view, the necessity of outsourcing in hospital facilities arises in order to both increase the service quality and save costs. The aim of FM is to ensure that customers receive more comfortable and safe service as a result of improving the unified business process in hospitals. As a reflection of this, although there have been attempts to change this understanding in Turkey recently, it is seen that the searches are still continuing.

**Healthcare FM Concepts and Evaluation of Related Studies**

Until about a quarter of a century ago in Europe and America, the concept of facility management was traditionally seen as the cleaning, maintenance and repair works of existing buildings, which emerged as a result of the weak relationship between the real estate, engineering, architecture and construction sectors (Atkin and

Brooks, 2009). Today, when the concept of FM is mentioned, it covers a wide range of areas including real estate management, financial management, business management, change management, human resources management, healthcare, safety, contract management, building and engineering services, maintenance, home services and some public services. It is understood that the area covered by FM is expanding day by day.

Considering the fact that "the country is a set of systems", which can be expressed within the definition of the concept of country in modern societies, significant changes are observed in the health system. These human-centered country systems achieve success to the extent that they provide these changes in terms of both content and service production.

Facility management dates back to the 1800s, when the railroad company in the United States conceived the idea of serving in station buildings (Atkin, 2003). FM underwent a massive global transformation in the mid-1980s, entering Europe first in the UK in 1984, the Netherlands in 1986, the Scandinavian Countries in 1992, and Germany in 1995 (Levainen, 1997). It subsequently emerged as a non-profit organization called the International Facility Management Association (IFMA) in the early 1980s to include associations dedicated to serving the FM profession in North America. As of today, it has a globally represented status in more than sixty countries around the world, providing guidance and expertise to its members (Ventovuori, 2007) and conducting research to prove best practices in FM (Adewunmi and Omirin, 2008).

As a result of the development experienced since its establishment, FM organizations have become the organizational structure from a cleaning service to the management of the board room. In line with the developments in the world, FM practice is divided into two purposes as short-term operational FM and long-term strategic FM. The short-term operational level, defined as the most visible part of FM, includes providing a safe and productive working environment for the development of the organization's core business activities (Nutt, 1999).

Strategic FM, on the other hand, carries out the work environment, support service management and coordination in strategic areas such as property asset management, strategic property decisions, facility planning and development, both of which draw attention as issues related to the organization's policy and strategic action plan (Pitt and Hinks, 2001).

FM is a separate management discipline that deals with the overlap between people, process and place in an organization (Akhlaghi, 1994). FM is responsible for coordinating all efforts to plan, design and manage buildings and their systems, equipment and furnishings to enhance the organization's ability to compete successfully in a rapidly changing world (Becker, 1990). FM is defined as an integrated approach to maintaining, improving and adapting an organization's buildings to create an environment that strongly supports the organization's core goals. Emphasis has been placed on the recognition of FM as a business process, as understanding the organization of work, managing people, managing buildings,

managing services, managing the work environment and managing resources are some of the core competencies of FM (Barrett, 1995).

Facility Management is defined as “a multi-disciplinary profession to provide and maintain the functionality of the built environment by combining people's place, process and technology” (Atkin and Brooks, 2000). Regterschot defines FM as “the integrated planning, realization and management of buildings, accommodation, services and resources that contribute to the efficient and flexible achievement of the effects of organizational goals in a changing environment” (Regterschot, 1990). FM is defined as “an integrated approach to the maintenance, improvement and adaptation of an organization's buildings to create an environment that strongly supports the organization's core objectives” (Barrett, 1995).

FM is also defined as "an integrated approach to operating, developing and adapting an organization's buildings and infrastructure to create an environment that strongly supports the organization's core objectives". According to this approach, the correct application of FM techniques aims to provide the right environment for organizations to carry out their core business and financial structures of these organizations on the effective and best value basis. The quality of service or performance provided is seen as a critical factor in any definition of value, and the relationship between quality and cost or price must be understood very well (Atkin and Brooks, 2009). Many of the above definitions emphasize that successful FM is highly dependent on cost effectiveness and performance management.

FM is accepted as a strategic function and contributes positively to the growth of the business and the success of the organization (Alexander, 2003). Healthcare FM is considered as one of the key elements for the successful delivery of healthcare services. FM functions contribute greatly to management, as hospitals and healthcare facilities in general are the most complex, costly and challenging structures to manage (Shohet and Lavy, 2004; Loosemore and Hsin, 2001). Essentially, the main purpose of the maintenance organization of the facilities in the hospital environment is to reduce to zero the errors that can be experienced in the physical operation of the hospital can have big consequences and that can result in death. One of the main challenges of managing hospital facilities is the wide variety of functions required to maintain operations and the complexity of services required to support them (Loosemore and Hsin, 2001).

In hospitals, it is thought that the general aspects of hotel services will be used as an indicator for the quality of the patients' clinical care, on the other hand, the hotel services are seen as a part of an integrated care package that creates lasting impressions by the patients and which patients they think they can affect (Angelopoulou et al., 1998; Liyanage and Egbu, 2008). 2005). The driving force of healthcare FM is heavily discussed in the literature. Issues such as strategic planning, customer service, market testing, benchmarking, environmental management, and staff development promote the successful implementation of healthcare FM (Gallagher, 1998; Amaratunga et al., 2002).

In many countries, the healthcare sector suffers from insufficient investment in the allocation of resources, as reflected in different financial reports. This trend may

negatively impact the core external activities of healthcare providers, primarily FM issues such as maintenance and operations (Ritchie, 2002).

The field of modern facility planning and management, which started with the establishment of the International Facility Management Association (IFMA) in 1980, is trying to strengthen its professional practice until today. A key element of the establishment of this association has been to establish a research infrastructure that will enable more informed decisions about the various impacts of facilities on business enterprise (Becker and Parsons, 2007).

For these reasons, it is possible to express the definition of healthcare FM as “the application of multiple disciplines and integrated techniques together to increase the performance and cost-effectiveness of existing facilities in order to support the organizational development of the institution”. This definition clearly reveals the holistic nature of the FM discipline and the interdependent relationship of many factors in its success. Today, FM continues to expand as a professional and strategic new business and profession.

On the other hand, increasing construction costs in the last thirty years in the world necessitate the need for more efficient use of facility spaces. In addition, with the addition of bureaucratic and legal restrictions, it increases the expectations of more performance and service from the facilities by the owners and users of the space. In this context, it is accepted that the performance and service expectations of the facilities are highly dependent on their maintenance, management and operation performances.

FM continues its development in the world centered on people and performance. Countries have developed different approaches for organization and business areas based on certain historical and cultural conditions. Generally, all organizations, public or private, use facility services to support their primary activities. Based on this framework, it will be possible to say that FM is managed both reactively and proactively. Efforts are being made to preserve and, if possible, improve existing services in the short term. In the longer term, long-term strategic business plans should be made about the changes that the organization may face in the future and how these will affect the existing service. FM should also act within the framework of the strategic plan from where they are today and design the future (Diez and Lennerts, 2009).

The criterion of success in FM is related to the extent to which it contributes to the needs of the customer or the organization. FM organizations that think about the future should understand the service expectations provided beyond meeting the customer's needs. There is a perception of quality that customers expect from every service, and customer dissatisfaction arises in case of a gap between the service offered and the expectation of the customer. While creating the service to be offered, factors such as importance, degree of necessity, effect on cost and level of success should be analyzed well.

Hospital facilities need an informed and political sourcing strategy to identify what their needs are. Such organizations benefit from internal or external resources in

order to carry out services other than their core business. Organizations should conduct this process in a healthy way by directing the use of internal or external resources according to service performance and control. FM is an integrated process and needs to focus on many points at the same time. The main task of the organization should be to master the performance levels in all areas it interacts with and contribute to the continuity of the organization.

In this study, considering the relations between the hospital and the FM, it was emphasized what the healthcare FM approach should be by adhering to the hospital principles within a facility understanding. In this context, the research methodology and the testing of hypotheses were included in the survey study conducted specifically for Ankara City Hospital, which was chosen as the sample area. In the structured surveys, data were collected as a result of interviews with the hospital management, doctors and medical personnel, who are the primary or indirect customers of the FM, the patients who are the direct customers of the FM, and their companions. In addition, the data set was completed by applying the survey study to the managers and employees of the FM company serving in the hospital. Thus, the main framework of working together with the clues has been tried to be drawn in order to achieve the level of successful FM. In the light of the data obtained as a result of these survey studies, "What should be the modern management understanding of city hospitals?" The answer to the question has been sought. It is aimed to reveal the deficiencies in the management understanding of these large facilities and to contribute to the search for solutions to eliminate these deficiencies.

**Ankara City Hospital Case Study**

The increase in the number of private hospitals observed in the healthcare sector of today's Turkey increases the competition in the field of healthcare. This development brings to the fore the managers in the healthcare sector see the hospital as a center of economic gain rather than looking at the hospital as a facility. Therefore, the management approach focuses on using hospital resources and performances effectively, efficiently and beneficially. In other words, the management approach in the health system sees hospitals as a profit-making enterprise and leads them to earn high profits with minimum cost (Akal, 1992).

With the increasing population in the health sector, rapid developments in communication opportunities have brought about an increase in patient expectations. This situation draws attention as an important point that deepens the disagreement between the owners of institutions who want to see hospitals as businesses that will make a profit, and the patients who want to receive treatment services with a higher quality. Therefore, efficient use of resources and increasing the quality of the service provided have become an important factor for healthcare FM (Zabada et al., 2001).

When the international literature is examined, it is understood that the authors tend to see the hospital as a facility in search and studies. Studies conducted in this context have revealed the positive and statistical effects of hospital personnel management on the cost, quality and financial performance of hospitals (Li and Benton, 1996; Smith-Daniels et al., 1988, Siferd and Benton, 1994). On the other

hand, the fact that public hospitals are not seen as a facility is thought to cause problems such as inefficient use of public resources and dissatisfaction of hospital staff and patients.

With the emergence of the city hospital model, the first application of the model, which considers hospitals as a health facility, started to be implemented in England, then in America, Portugal, Spain, Canada, Italy, France, Germany and Turkey. (Doğan and Aydın, 2017).

In this study, Ankara City Hospital, which is one of the City Hospitals practices in Turkey, is discussed. Ankara City Hospital is a hospital that was opened in 2019, established on an area of 674,000 m², has a closed area of 1.3 million m², consists of 9 main masses, has a parking lot for 6,918 vehicles and a bed capacity of 3,810. The primary target audience of the study was determined as hospital managers, hospital employees and patients, in addition to these, it was applied to hospital facility managers and FM employees. Hospital facility and healthcare FM understandings of this target group were examined.

The variables in the study were used from scales whose reliability and validity were tested in the international literature. In the first part of the survey, the demographic structure of the target audience was tried to be learned, and in the next part, questions prepared with a 5-point likert scale were asked.

Based on the sample size, 10% sample error of the sample size, and 95% confidence interval criteria in the survey conducted at Ankara City Hospital, the survey conducted specifically for Ankara City Hospital, which was selected as the target population, included hospital management, doctors and medical personnel, who are the primary or indirect customers of FM. The study was conducted by random sampling method among inpatients who are direct customers of the FM, and facility managers and facility employees who provide service.

**Evaluation of Hospital Managers and Facility Managers Survey Results**

People working in managerial positions at Ankara City Hospital were asked the question on which subjects they need training on for an effective FM. They stated that regular and continuous training programs should be given in the field of service. It was asked whether they had information about whether there was any work to be done in universities on healthcare FM, and 96.4% of the hospital managers and 93.7% of the facility managers answered that they should work at universities. When asked how the efficiency of healthcare FM is evaluated, 78.6% of hospital administrators stated that they do not find FM effective. When asked how they found the management services (service management and information technology) conditions, 75.0% of the hospital managers and 87.5% of the facility managers said that they saw it as successful. When asked about sterilization and disinfection services, 78.6% of hospital managers and 87.5% of facility managers stated that they are successful. There is a shortage of trained personnel to work in FM, so it becomes necessary to support the employed personnel with a regular continuous training activity.

When people working in managerial positions were asked how they found the plant and structural landscape, environmental care and physical conditions, 71.4% of the hospital managers and 81.2% of the facility managers stated that they found it successful. When asked about the joint care services of the facility, 92.8% of the hospital managers and 93.7% of the facility managers stated that they are successful. When asked how they found the parking and security service conditions, 57.1% of the hospital managers and 81.2% of the facility managers said that they found it successful. When asked about general cleaning jobs, 96.4% of hospital managers and 93.7% of facility managers said they found it successful. Regarding food services, 67.8% of hospital managers and 81.2% of facility managers evaluated that they found it successful. It seems that the City Hospital is inadequate especially in terms of parking services.

When the hospital managers who participated in the survey were asked about in-hospital transportation services, 75.0% of the hospital managers answered that they were successful. When asked how they found the pest control service, 89.3% of the hospital managers stated that they were successful. When asked what they think about laundry services, 78.6% of hospital managers believe FM is successful. When asked about the waste disposal management service, 89.3% of hospital managers find FM successful.

When people working in managerial positions at the City Hospital were asked about the general working conditions, 82.1% of the hospital managers and 87.5% of the facility managers stated that they found it successful. When healthcare FM facility planning is asked, 78.6% of hospital managers and 93.7% of facility managers say that they find the planning successful. About the use of internal and external resources of the hospital, 85.7% of the hospital managers and 87.5% of the facility managers state that they find the use of resources successful. Regarding hospital change management, 82.1% of hospital managers and 81.2% of facility managers answered that they found it successful. When asked about human resources management, 78.6% of hospital managers and 87.5% of facility managers state that they find it successful.

When people working in managerial positions were asked about outsourcing, 67.8% of hospital managers and 81.2% of facility managers found outsourcing successful. About the in-hospital facility procurement process, 71.4% of the hospital managers and 81.2% of the facility managers stated that they found it successful. About the features of the services, service providers and service level agreements, 60.7% of the hospital managers and 87.5% of the facility managers said that they found it successful. When asked about work efficiency, 82.1% of hospital managers and 75.0% of facility managers stated as successful. About smart building and smart building systems, 85.7% of hospital managers and 93.7% of facility managers answered as successful. About the management of specialist services, 67.8% of hospital managers and 87.5% of facility managers consider it successful. In terms of training and professional development, 60.7% of hospital managers and 93.7% of facility managers find the activities successful. It seems that the training and professional development activities of the facility company are insufficient.

When the results of the survey are examined, 93.7% of the facility managers who participated in the survey have been evaluated as successful in the common maintenance works of the facility, general cleaning works and smart building and smart building systems. In the same headings, 91.6% of hospital managers find it successful.

**Evaluation of Hospital Staff and FM Staff Survey Results**

When asked to the hospital and FM staff of Ankara City Hospital on which subjects they need training for an effective FM, 93.7% of the hospital staff and 94.7% of the facility staff stated that regular training programs should be given in the department and service area of the staff. They have stated. When asked how the efficiency of healthcare FM is evaluated, 73.1% of the hospital staff and 82.9% of the facility staff said that the FM is effective. About management services (service management and information technology) conditions, 62.3% of hospital staff and 59.6% of facility staff say they are successful. When asked about sterilization and disinfection services, 90.4% of the hospital staff and 91.5% of the facility staff stated that they are successful. About the joint maintenance works of the facility, 55.9% of the hospital staff and 64.9% of the facility staff stated as successful. When asked what they think about the parking and security service conditions, 63.6% of the hospital employees stated that they were successful, while 57.4% of the facility employees found it unsuccessful. This is due to the fact that the indoor and outdoor parking areas of the hospital are quite inadequate.

When hospital employees and people working in FM were asked about transportation services, 63.6% of hospital employees and 80.8% of facility employees stated that they found it successful. About the status of the Pest control service, 79.1% of the hospital staff and 81.9% of the facility staff said it was successful. In laundry services, 79.8% of the hospital staff and 85.1% of the facility staff stated that they were successful. When asked about the general working conditions, 52.6% of the hospital employees stated that they were satisfied and 81.9% of the facility employees stated that they were not satisfied with the working conditions. It shows that more than half of the employees at Ankara City Hospital are not satisfied with their working conditions and their job.

When hospital staff were asked about the vegetative and structural landscape, environmental care and physical conditions, 51.6% of the hospital staff stated that they found it successful. About the building maintenance and construction services, 52.9% of the hospital employees said that they are successful. When asked about the maintenance services of medical equipment and devices, 76.2% of the hospital staff see it as successful. When asked about the maintenance and preservation of technical, electronic and electromechanical devices, 77.1% of the hospital staff stated that they were successful. When asked about the furnishing services, 66.2% of the hospital staff say that they find it successful. About general cleaning works, 66.2% of hospital staff say they are successful. When asked about catering services, 73.1% of the hospital staff stated that they were successful. When asked about waste disposal management, 76.5% of hospital staff say they are successful.

When the people working in the FM in the city hospital were asked whether they participated in FM certificate programs and training, 98.3% of the facility employees stated that they received training and certification in the field of occupational safety. When asked about the studies that should be done at universities on healthcare FM, 81.9% of facility employees stated that universities could be more active in FM training programs. When asked about healthcare FM strategy planning, 73.4% of facility employees stated that they found it unsuccessful. When healthcare FM was asked about facility planning, 54.2% of facility employees stated that they were unsuccessful. About the use of internal and external resources of the hospital, 52.1% of the facility employees say that they are unsuccessful. When asked about hospital change management, 53.2% of facility employees consider it unsuccessful. When asked about human resource management, 55.3% of facility employees answered unsuccessfully. A large part of healthcare FM employees find the organization they are in unsuccessful due to inadequate service training and wrong management model.

When asked about outsourcing to healthcare FM employees, 72.3% of facility employees stated that they found it unsuccessful. When asked about the in-hospital facility procurement process, 51.0% of facility employees see it as unsuccessful. About the features of services, service providers and service level agreements, 79.7% of facility employees stated as unsuccessful. When asked about work efficiency, 73.4% of facility employees consider it unsuccessful. When asked about smart building and smart building systems, 57.4% of facility employees answered as unsuccessful. When asked about the management of specialist services, 58.5% of facility employees are seen as unsuccessful. In terms of training and professional development, two-fifths of facility employees state 80.8% as unsuccessful. Personnel working in FM interpret the main reason for failure in FM as insufficient training, lack of support for professional development and as a result, lack of qualified personnel.

82.9% of the facility employees who participated in the survey found FM effective. However, especially detailing the effectiveness of healthcare FM; management services conditions 40.4%, facility common maintenance work 35.1%, parking and security service conditions 57.4%, general working conditions satisfaction 81.9%, healthcare FM strategy planning 73.4%, healthcare FM facility planning 54.2%, hospital internal and external resource use 52.1%, hospital change management 53.2%, human resources management 55.3% , outsourcing 72.3%, in-hospital facility procurement process 51.0%, features of services, service providers and service level agreements. 79.7%, work efficiency 73.4%, smart building and smart building systems 57.4%, management of specialist services 58.5% and education and professional development 80.8% negative have expressed their opinion. Considering these rates, although 82.9% of the facility employees see the facility services as effective, when the service titles are evaluated within themselves, the average of the survey questions appears to be unsuccessful in 61.1%. As the reason for the contradiction between these two results, it is seen that the facility employees who participated in the survey hid their opinions in the question of "healthcare facility management efficiency", and they revealed their real opinions in the questions in which FM efficiency was detailed.

## Evaluation of Inpatients Questionnaire Results

When inpatients at Ankara City Hospital were asked whether they were aware of the FM training programs, 79.0% of the inpatients stated that they were not aware of the FM training programs. When asked about medical support services (laboratory, imaging, physical therapy and rehabilitation) conditions, 68.2% of the patients stated that they were successful. About the vegetative and structural landscape, environmental care and physical conditions, 66.5% of the inpatients who participated in the survey stated that they were successful. On the other hand, 75.2% of the patients answered the reception service conditions as successful. When the inpatients were asked about the parking and security service conditions, 91.8% of the patients found it unsuccessful as very high. It is seen that each group participating in the survey conducted in Ankara City Hospital jointly found the parking services unsuccessful.

When inpatients were asked about in-hospital transportation services, 77.7% ofthe patients stated that they were successful. When asked about laundry services, 81.9% of the patients answered as successful. Regarding general cleaning works, 67.7% of the patients answered as successful. In catering services, 66.1% of the patients see it as successful. When asked about overall satisfaction, 69.6% of patients see it as successful.

## Conclusion and Evaluation

The human being, whose characteristics are limited, is obliged to live together. As a result of this, the formation and development of the system, which is defined as the country, has been completed. The difficulty of treating oneself in the face of all kinds of diseases that people experience has led to the establishment of a health system under the authority of the country, thus taking its place among the systems that make up the country.

Often, resource-constrained healthcare delivery becomes a challenge to existing conditions. While trying to maintain the quality of care under inadequate conditions and facilities, health facilities also try to fight the burden of patients and diseases. Healthcare is becoming a difficult struggle in the face of increasing and aging population, increasing infectious and chronic diseases, increasing expectations of people as a result of the development of health technologies, inadequate systems and adverse conditions against insufficient and unqualified health workers.

Health institutions that try to serve patients with very different types in terms of their functions are increasing day by day. In health institutions, whose roles and functions are expanding with each passing time, structural complexity and managerial difficulties begin to emerge due to this expansion. It is difficult to overcome these difficulties and to produce practical solutions in the functioning of the state. In addition, laws, laws and regulations are in a decisive position in the functioning of the state. On the other hand, seeing hospitals, which are health institutions, as a business and trying to apply methods and models for this is another factor that draws attention.

Considering the developments in the health sector in the world, a good hospital management extends beyond just managing resources and people, meets the expectations and needs of customers (patients) within the right management system, employs managers who have the executive, responsibility and skills to run the system, and employees move towards a common vision. It is observed that he is oriented towards a system in which he acts as a team. As a result, a new systematic progress can be gained by targeting a new healthcare FM that has similar ones in the world and can be developed based on these similar ones.

For example, in the survey conducted in Ankara City Hospital, inconsistencies were observed within the structuring of the hospital facility approach, which has similarity in the world by the state. This situation reveals the impression that the connection between thought and practice has not been fully established. Although hospital and facility managers find FM services 92.6% successful, hospital staff, facility employees and hospitalized patients' satisfaction rates with facility service management as 61.1% unsuccessful reveal the inconsistencies in the hospital facility understanding. In fact, the high satisfaction rate of 64.4%, which occurs in the satisfaction rates of inpatients in the hospital facility services, is quite remarkable.

So far, there has been no examination of FM performance in Turkey for city hospitals. When the studies in the field of healthcare FM in the world are examined and based on this, it is understood that a more comprehensive local model can be put forward. Because with the increase in epidemic diseases in the world today, the importance of health service provision is increasing day by day. Hospitals, which are the main service delivery area of the health industry, have been transformed into city hospitals, which have become a larger, collective and complex structure. Turkey has participated in this transformation, dozens of city hospitals have been opened and dozens of them are still under construction. In this context, city hospitals should be seen as a health production facility. Thus, it is understood that an accurate and efficient model should be established in healthcare FM. Based on this framework, the necessity of having real estate development and management experts and trained FM experts in healthcare FM emerges.

## References

Adewunmi, Y. and Omirin, M. 2008. Benchmarking in facilities management in Nigeria. www.unilag.edu.ng (www.unilag.edu.ng/opendoc.php?_13844$doctype_pdf) 09.03.2021.

Akal, Z. 1992. İşletmelerde Performans Ölçüm ve Denetimi. MPM Yayınları, Ankara.

Akhlaghi, F. 1994. History and development of facilities management from the definitive document of the postgraduate programme in facilities management. Sheffield Hallam University, Sheffield.

Alexander, K. 2003. A strategy for facilities management. Facilities, Vol. 21 Nos 11/12, pp. 269-74.

Amaratunga, D., Sarjan, M. and Baldry, D. 2002. Process improvement in facilities management: the SPICE approach, Business Process Management Journal, Vol. 8 Iss 4, pp. 318 - 337, Volume 15, pp 141-151.

Angelopoulou, P., Kangis, P., Babis, G. 1998. Private and public medicine: a comparison of quality perceptions. International Journal of Health Care Quality Assurance, Vol. 11 No. 1, p. 14

Atkin, B. 2003. Contracting-out or managing services in-house. Nordic Journal of Surveying and Real Estate Research, Vol. 1, pp. 18-33.

Atkin B. and Brooks A. 2000. Total Facilities Management / 1nd Edition, Blackwell Science Ltd, 205, United Kingdom.

Atkin, B. and Brooks A. 2009. Total Facilities Management / 3nd Edition, Blackwell Science Ltd,325, United Kingdom.

Barrett, P. 1995. Facilities management-Towards best practice, Blackwell Science, Oxford, U.K.

Becker, F. 1990. The Total Workplace. Van Nostrand Reinhold, New York, NY.

Becker, F. and Parsons, K. 2007. Department of Design and Environmental Analysis, Cornell University, Ithaca, New York, USA.

Diez K. and Lennerts, K. 2009. A process-oriented analysis of facility management services in hospitals as a basis for strategic planning, Journal of Facilities Management, Vol. 7 Iss 1, pp. 52-60.

Doğan, A., Aydın, R. 2017. Mersin Şehir Hastanesi, Sağlık ve Medya İletişimi Sempozyumu, İzmir Kuzey KHB G.Sekreterliği, 17-18-05.2017, İzmir, https://slideplayer.biz.tr/slide/12539470/ (Erişim:20.07.2021).

Gallagher, M. 1998. Evolution of facilities management in the health care sector. in Harlow, P. (Eds), Construction Papers, No. 86, The Chartered Institute of Building, Ascot.

Lennerts, K. 2009. Investment in Hospital of The Future, Ed. Rechel B. vd., World Health Organization, Chapter 9 “Facility management of hospitals”, pp. 167-186, United Kingdom.

Lennerts, K., Abel, J. and Sharma, V., 2003. Reducing health care costs through optimised facility management-related processes , Journal of Facilities Management, Vol. 2 Iss 2, pp. 192-206.

Lennerts, K., Abel, J. and Sharma, V., 2005. Step-by-step process analysis for hospital facility management An insight into the OPIK research project, Facilities Vol. 23 No. 3/4, pp. 164-175.

Levainen, K. 1997. Building sites as a city facility, facilities management: European practic. Arko Publishers, Netherlands, pp. 44-47.

Li, L.X. and Benton, W.C. 1996. Performance measurement criteria in health care organizations: review and future research, European Journal of Operational Research, 93, pp. 449-468.

Liyanage, C. and Egbu, C. 2005. Controlling healthcare associated infections (HAI) and the role of facilities management in achieving ‘Quality’ in healthcare: a three dimensional view. Facilities, Vol. 23 Nos 5/6, pp. 194-215.

Loosemore, M. and Hsin, Y. 2001. Customer-focused benchmarking for facilities management. Facilities, Vol. 19 Nos 13/14, pp. 464-75.

Nutt, B. 1999. Linking FM practice and research. Facilities, Vol. 17 Nos 1/2, pp. 11-17.

Pitt, M. and Hinks, J. 2001. Barriers to the operation of the facilities management: property management interface, Facilities, Vol. 19 Nos 7/8, pp. 304-307.

Regterschot, J. 1990, Facility Management in Changing Organizations, Proceedings of the International Symposium on Property Maintenance Management and Modernization, Vol. 1, CIB International Council for Building Research Studies and Documentation Working Commission 70, Singapore, pp. 146-55.

Ritchie, L., 2002. Driving quality – clinical governance in the National Health Service. Managing Service Quality, Vol. 12 No. 2, pp. 117-28.

Shohet, I.M. and Lavy, S. 2004. Development of an integrated healthcare facilities management model. Facilities, Vol. 22 Nos 5/6, pp. 129-40.

Siferd, S. and Benton, W.C., 1994. A Decision Model For Shift Scheduling Of Nurses, The European Journal Of Operational Research, 74, pp. 519-527.

Simith-Daniels, V.L., Schweikhart, S.B. and Smith-Daniels, D.E. 1988. Capacity management in health care services: review and future research directions, Decision Sciences, 19, pp. 889-919.

Ventovuori, T., 2007. Analysis of supply models and FM service market trends in Finland. Journal of Facilities Management, Vol. 5 No. 1, pp. 37-48.

Zabada, C., Singh, S. and Munchus, G., 2001. The role of information technology in enhancing patient satisfaction, British Journal of Clinical Governance, 6(1), pp. 9-17.

# Ethics in the use phase of building projects – a scoping review

**Jardar Lohne**

**Kennedy Gambit**

**Alenka Temeljotov Salaj**

Norwegian University of Science and Technology, Norway
jardar.lohne@ntnu.no
kennedyg@stud.ntnu.no
alenka.temeljotov-salaj@ntnu.no

## Abstract

This paper investigates research carried out within the field of unethical and unlawful behaviour in the use phase of building projects. The prime interest lies in understanding the mechanisms driving such behaviour, from building process, contractual and regulatory perspectives. The analysis is based on a scoping literature review. Publications from the latest ten years occurring in four major journals within the field of Facilities Management are scrutinized. In addition, a bibliometric search was carried out using search words like “ethics”, “morals”, “use phase”, “facilities management” etc., and combinations of these using Boolean operators. This bibliometric approach was followed by manual screening of abstracts before selecting the papers scrutinized in detail. Given the magnitude of the economic interests involved and the high levels of workmen with little formal qualifications, surprisingly little research has been found covering unethical and unlawful behaviour in the use phase of building projects. There is a dire need both for mapping the extent of and the mechanisms driving such behaviour. Measures implemented without a proper understanding of the challenges involved is likely to be of little effect.

Keywords: ethics, facilities management, project management, behaviour.

## Introduction

This paper investigates research carried out within the field of unethical and unlawful behaviour in the use phase of building projects. The prime interest lies in understanding the mechanisms driving such behaviour, from building process, contractual and regulatory perspectives. As is commented in Lohne et al (2020), little research appears to have been carried out according to construction process optics, or ethical challenges in general.

This is particularly grave, considering that, as Bredillet (2014:548) comments, “the underlying ethical approaches supporting the field, and consequently the practice, have immense impact”. Understanding the why of one’s actions is, in fact, crucial to attain what Mirsky and Schaufelberger. (2014:vi) maintain as the most important topic to the future of the AEC industry, notably “honourable, professional practice”.

Yet still, as Walker (2014) comments, “even though the PM discipline should maintain a strong and enduring interest”, there is “a dearth of papers related to ethics in PM”. Within the field of PM, later years have seen a movement towards an increased level of interest for ethics, for instance Locatelli et al. (2017; 2020); Lohne et al. (2016; 2017; 2020); Gunnerud et al. (2019); Wold et al. (2019).

As described in Lohne et al. (2019), these papers have mostly been concerned with the construction phase of projects, from project initiation to completion. Relatively little, however, seems to have trickled through from analyses of the use phase of buildings and infrastructure to reach a broader scientific audience. Springing out from earlier analyses in Lohne and Drevland (2019) and Drevland et al. (2017), the ambition of this paper is exactly to do this, that is, to explore analyses pertaining to core ethical questions within the use phase, outline crucial issues at stake and identify blind spots. To address these overall challenges, we in the following address the following research questions:

- *What research has been carried out on ethics in the use phase of building projects?*
- *What are the most important gaps in the research?*

## Theoretical framework

The research presented in this paper is underpinned by an understanding that inherent organisational features of the AEC industry serve as framework conditions for how people envisage, carry out and judge acts. These perceptions of acts are what we in the following understand as ethics in a wide sense of the term. A main interest for the analysis is to understand how these perceptions is to understand them in what we call their material realisation, that is, analyse them in the context in which they are situated.

Earlier research has carried out similar analyses within different phases of building projects in the design phase (Lohne et al., 2017) and handover (Lohne et al., 2020).

### General characteristics driving behaviour in the construction industry

A number of studies have examined how framework conditions influence the actual workings of the industry, see for instance Ballard and Howell (1998), Dubois and Gadde (2002) and Vrijhof (2011). These analyses are typically characterized by a production systems optic. As so, they underline how the products of the AEC industry are in general one-offs, having in-situ production sites, changing project coalitions for each project, multiple clients and suppliers etc. One overall message from this research is that addressing both effectiveness and efficiency of AEC industry projects needs addressing all these factors. We have earlier maintained

how specific ethical challenges encountered in the industry can be understood according to the same logic.

This analysis following a production systems optic appears, however, to be somewhat localised to the production phase of projects. Little effort seems to have been done to expand the field of research into the use phases of projects.

Estimating the level of shadowy activity within a field – be it an industry or a country – is notoriously tricky (Locatelli et al. 2020). Rizk et al. (2018) outline how “the complexity of the project and organisations involved coupled with scarce sanctions on corrupt activities” is a factor leading to corruption. However, much of this effort has described weaknesses in tendering processes, undue political involvement, insufficient sanctions, and similar matters. Little research document and analyse the conditions for criminal activity in the use phase of construction projects. As Lohne et al. (2021) argue, the AEC-industry a) has unique projects that b) are not easily measurable, c) are governed by inexperienced clients, d) with highly specific production sites, e) where the team changes from project to project, and f) where little efficient control is effectuated over the material value chains. These characteristics combined serve – we would argue – as drivers for unethical behaviour in the AEC industry.

### Trends in Facilities Management

Facilities management (FM) is considered to be professional field, having established professional association bodies (e.g. EuroFM, IFMA) with routes to a qualification licenses. The role of ethics in FM could be discussed as “professionalisation” in the relevant context of ethical awareness and its benefits (Grimshaw, 2001). The need for ethical awareness at the time was discussed basically on the professional characteristic of the discipline, emphasizing business ethical codes redundancy.

The key direction and reason for the norms was put from the practice of FM, which affects well-being of people (ibid). Even though FM field is supportive, the management ethical codes within organization could be comparable with construction field (Ho and Oladinrin, 2016) in implementation and embeddedness of ethical codes. From the perspective of processes of ethical codes implementation: identification and removal of barriers, coding, internalization, enacting values, monitoring and accountability, limited attention on the last two processes in respect to ethical code implementation are found (ibid).

Even though FM is potentially the most susceptible to bribery and other types of corruption (Roper, 2012, 212), the role of ethics is not mentioned so often as an attribute of special research attention within FM filed (Roper, 2017). The authors assume that this was considered a “given” in practice, but the importance of ethics in a field with so many potential purchasing, teaming and partnering opportunities should highlight the need for strong ethics in all competency evaluations (Tucker and Roper, 2014). More discussion is raised up in relation to digital use in facility environment and ethics issues related to human dignity, transparency, accountability or unintended consequences of a new domain in FM (Xu et al. 2019).

### Knowledge gap

In sum, even though both the potential for unethical action seems high, little attention seems to have been given to questions of ethics within the use phase of construction projects. As seen, a combination of explanatory axis of analysis could serve to explain this, such as the preoccupation with production rather than maintenance concerns and the tendency to consider ethical concerns as suiting for being dealt with as tacit knowledge in the sense outlined in Lohne et al. (2017). Yet few if any attempts have been made to create an overview over the existing body of knowledge within the field of ethics in the use phase of construction projects. This is the knowledge gap we are addressing in the following.

## Methods

### Research design – Scoping review

This study uses a scoping review methodology, chosen as the strength of this method in creating an overview of the state of a field as well as serving as a specific tool for mapping a broad and diverse topics. Given the flexibility of the method, one can have flexibility in selection and inclusion of literature; for example, by including literature with a wide range of study designs and methodologies, and to combine qualitative and quantitative studies, which again is a necessity when assessing literature within the field of project management and project delivery method where no coherent paradigm regarding study design exists. The methodology originates from the field of medicine, but have been successfully adopted within other fields (see for example, Davis et al., 2015; Griffiths et al., 2009; Lohne et al., 2019; O'Donnell et al., 2017). Furthermore, the methodological approach is concerned with the identification of the current state of understanding within a chosen field, aimed at mapping key concepts and research gaps, by searching, selecting and combining existing knowledge (Arksey & O'Malley, 2005; Colquhoun et al., 2014).

This scoping review implements the framework outlined by Arksey and O'Malley (2005). The framework consists of five steps: 1. Identify the research question; 2. Identify relevant studies; 3. Study selection; 4. Chart the data; and 5. Collate, summarise and report the results. However, it also implements the contribution to the methodology made by Levac et al. (2010), Daudt et al. (2013), and Colquhoun et al. (2014). Levac et al. (2010) propose some clarification regarding the particular framework, drawing from their own experience. Daudt et al. (2013) offer specific recommendations such as being flexible regarding the research questions and engaging the whole research team throughout every step of Arksey and O'Malley's (2005) framework. Colquhoun et al. (2014) contribute with clarity to the definition and methodology itself.

### Selection Criteria

The publication date of the journals was used as a selection criterion, investigating articles spanning from 10 years ago up to the present. After determining the year of publication for selecting articles from journals, one of the criteria utilized to choose the paper is a match from keywords that were already pre-formulated (stage 0 of

the research procedure, see figure 2 below). Another criterion comes from the abstracts, which look at the purpose, methods, findings, and implications of the papers. Another factor to examine is the title of the article itself; if there are no matches from the abstract or keywords, the full document is scrutinized in order to assess the article.

### Constructing the Research String

The Research String was constructed from the most frequent keywords in the literature identified from the first 3 steps. Different combination of these tried using Boolean Operators. Examples of the most common keywords are Ethics, Construction Industry, and Construction Projects; and examples of the search strings are “Facilities Management and Ethics”. Protocol was also created noting down all searches with corresponding results in every search strings.

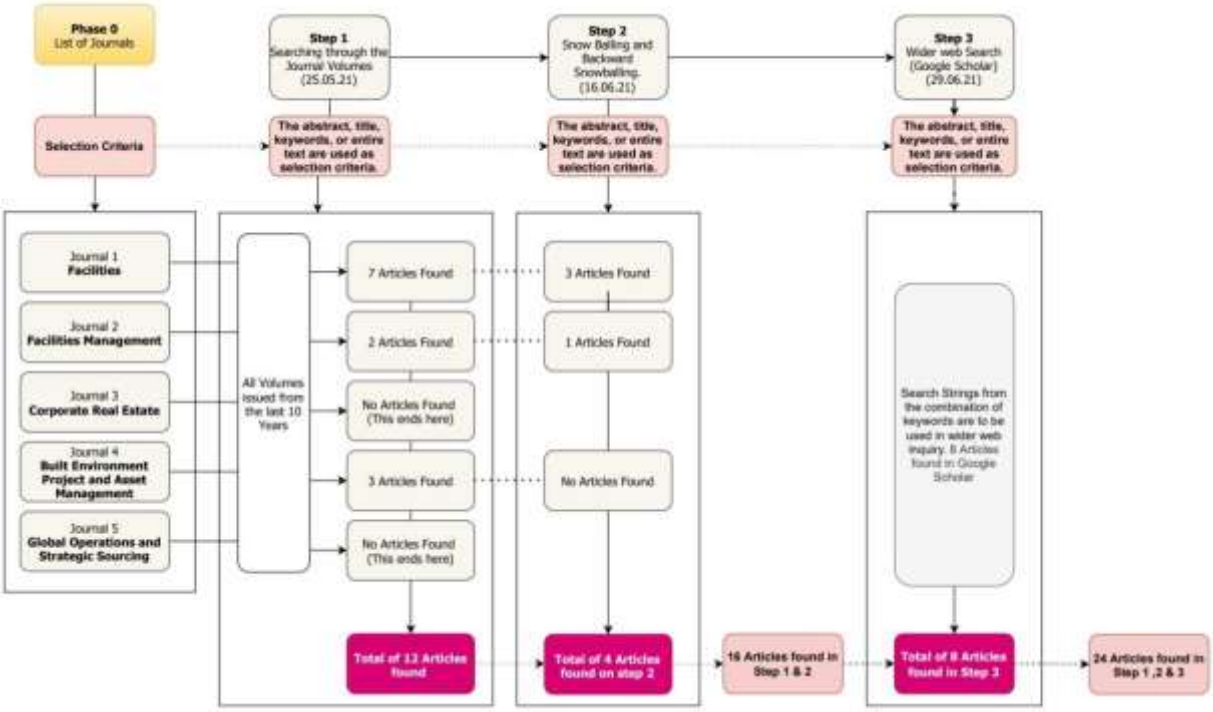



*Figure 2: Overview over the research procedures followed.*

As can be observed, three steps were followed, a scrutiny of selected journals, backwards and forwards snowballing of the literature identified, and a wide internet search using Google Scholar.

### Data Analysis and Presentation

The publication has been analysed according to two approaches. In the first, a general overview of the topic described in the paper has been outlined in matrix presented in chapter 4.1. Secondly, a more thorough going through of the publications has focused on the main object of analysis. Therefor sections 4.2 until

4.5 describe the core elements of the research assessed and does not take into account its full scope.

**Results**

In the following, the notion of ethics as described in the literature examined is used rather widely. Given the sparsity of directly relevant literature within the field, articles that indirectly or partly treat subjects of significant ethical importance have been included.

General overview of the identified research

The following presents an overview over the general research topics scrutinized by the literature identified. The identified articles are listed according to their general themes. As observable, questions pertaining to the End User are treated by 7 articles, Contractor-relevant questions are treated by 10 articles, Clients have been investigated by 6 articles, whilst the role of the FM/PM is treated by 13 articles. Some articles address more than one stakeholder.

Table 1: Classification of research identified based on the topic of the papers scrutinized.

| Main Article | End-User | Contractor | Client Owner | FM PM |
|---|---|---|---|---|
| Managing the needs of end-users in the design and delivery of construction projects 2010 (Pemsel) | X | | | X |
| After the fire: new ways of working in an academic setting 2010 (Gorgievski) | X | | X | |
| Management of client requirements for design and build projects in the construction industry of Hong Kong 2010 (Yu) | X | | | X |
| Tight budget constraints and the absence of strategic planning: An exploratory analysis of FM service outsourcing 2016 (Hou) | | | | X |
| Evaluation of ethical codes implementation – a fuzzy approach 2016 (Ho) | | | | X |
| Ensuring environmental performance in green leases: the role of facilities managers. 2019 (Rameezdeen ) | X | | X | X |
| Barriers to "green operation" of commercial office buildings Perspectives of Australian facilities managers. 2019 (Rock) | | | | X |
| Evaluating key risk factors for PPP water projects in Ghana: a Delphi study. 2015 (Ameyaw) | X | X | X | |
| Analysis of causes and impact of variation order on educational building projects. 2016 (Oyewobi) | X | X | | |
| Ethical views of micro-enterprises delivering project and asset management services in west-central Scotland. 2011 (Sommerville) | | X | | |
| Co-creation and co-destruction of experiential value: a service perspective in projects. 2019 (Fuentes) | X | | | X |
| Factors that trigger bullying amongst subcontractors toward intention to quit in the construction projects. 2019 (Jalali) | | X | | X |

| | | | | |
|---|---|---|---|---|
| Problems and solutions of requirements management for construction projects under the traditional procurement systems. 2013 (Yu) | | | X | |
| Effectiveness of policies and difficulties in improving safety performance of repair, maintenance, minor alteration, and addition works in Hong Kong. 2021 (Yu) | | X | | |
| Barriers to “green operation” of commercial office buildings: Perspectives of Australian facilities managers. 2019 (Rock) | | | | X |
| Effect of Change Orders on Cost and Schedule Overruns of School Building Renovation Projects. 2018 (Shrestha,) | | X | X | |
| Challenges in hotel building refurbishment projects in Sri Lanka. 2018 (Ekanayake) | | X | | |
| Uncertainty in the Early Phase of a Municipal Building Refurbishment Project—A Case Study in Finland. 2020 (Uotila) | | | X | |
| The UK construction and facilities management sector's response to the Modern Slavery Act: An intra-industry initiative against modern slavery. 2020 (Trautrims) | | X | | X |
| A Review of Leadership Qualities among Building Refurbishment Project Managers. 2018 (Yacob) | | | | X |
| A literature review on leadership qualities among Project Managers of building refurbishment. 2020 (Garcés, 2020) | | | | X |
| An Investigation of the Early Involvement of Facilities-Management Specialists into the Traditional Design-Development Process: The Causes of Conflicts. 2020 (Sekhu) | | | | X |
| Managing Uncertainty from Planning and Design to Construction Process of Building Refurbishment Projects:A Proposed Conceptual Approach. 2019 (Yacob) | | X | | |
| Unlocking the potential of early contractor involvement in reducing design risks in commercial building refurbishment projects – a Western Australian perspective. 2017 ( Nibbelink) | | X | | |
| **Total number of articles identified: 24** | **7** | **10** | **6** | **13** |

The end-user

Pemsel et al. (2010) identified areas of difficulty in managing the needs of end-users in the course of the design and delivery of construction projects and suggested possible solutions. According to their findings, communication and attitude issues must be controlled during the project's design and delivery, as well as the inherent challenge of recognizing end users' real needs. Rather than formalized procedures identified in the literature, facility planners relied mainly on educational and behavioural abilities to help manage these difficulties.

Gorgievski et al. (2010) presented findings from a Post-Occupancy Evaluation of new ways of working in the Faculty of Architecture of the Delft University of Technology. Meeting other individuals is a strong suit of the new office layout. Employees noted a shortage of locations suitable for private (telephone) conversation as well as insufficient visual and auditory seclusion in their workspaces. Employees do not have adequate control over the atmosphere and appearance of their immediate work area. Workplace security is evaluated as poor.

More rooms with doors, especially doors that can be locked, are desired. Another common concern was the absence of personal and group filing and storage options.

In Hong Kong, Yu et al. (2010) looked into the current practice of handling client needs for design and build (D&B) construction projects. The lack of a comprehensive client's project brief, inadequate client involvement in the briefing process, the lack of impartial agents, the controversy caused by the uncertain legal status of end users, and the improper timing of raising requirements by key project stakeholders were among the study's findings.

The contractor

Oyewobi et al. (2016) identified and examined the causes of variation orders in new construction- and refurbishment projects, ascertain their effects and establish the cost and time performance implication as a result of variation orders. The study identified 13 main factors as causes of variation orders and the results revealed that the most frequent effects of variations were increase in construction costs, time, client dissatisfaction, increase construction project rework and demolition and project abandonment. The results also showed that variation orders had significant effects on both cost and scheduled performance of the educational building projects.

Sommerville (2011) found little work on ethical views on the project and asset management sides of the construction industry, and an absence of work on micro-enterprises. The research findings indicate that a range of ethical considerations are important to micro-construction enterprises However, no single ethical perspective was found to be dominant, and managerial attitudes varied according to age, experience, and education. The wider business community may take heart from the view that the micro-enterprises were law abiding and sound businesses to deal with.

Workplace bullying among subcontractor managers was investigated by Jajali et al. (2020). Three key characteristics (primary contractor leadership, construction culture, work organization, and task design) were discovered to have a favorable effect on workplace bullying among subcontractor managers in this study.

The Repair, Maintenance, Minor Alteration, and Addition (RMAA) sector accounted for 50% of all fatalities in the Hong Kong construction industry in 2016, according to Dolphin et al. (2021). Despite many regulations implemented in recent years, the casualty rate has remained steady, raising concerns about the effectiveness of present safety precautions in RMAA activities. Against this backdrop, this study is aimed at identifying and evaluating the 1) effectiveness of prevailing policies; 2) potential difficulties in improving safety performance in Hong Kong; and 3) best ways to improve the safety performance of RMAA. The ‘award of encouragement’ is found to be the most effective policy category, whereas the ‘lack of self-regulation of workers’ appeared as the most significant hurdle. In order to further validate the results obtained from the study, a number of interviews using highly experienced professionals were conducted. It is suggested that solutions such as RMAA worker registration, increased monitoring and enforcement, and the provision of loan services for safety overcome the challenges. The insights gained from this study can help concerned parties improve the occupational safety and health (OSH) of

such projects by establishing effective policies while also improving the crucial hampered status quo. (Dolphin et al., 2021).

In their paper, Shrestha et al. (2018) highlight how change orders are a typical concern in construction projects and how their impact on cost and schedule has been investigated. However, they discovered few research that looked at the impact of change orders on the cost and schedule overruns of school renovation projects. The data for 161 school building rehabilitation projects costing $1 billion in the Las Vegas Valley in southern Nevada is analyzed in this study. The findings demonstrate that change orders raised the project cost by 3.56 percent on average of the overall contract cost for these projects, and that change orders accounted for three-fourths of the project additional cost. Unforeseen, owner-initiated, and design- related change orders all contributed to major schedule overruns. Furthermore, contrary to what is discovered for new building projects, change orders increased as the size of the renovation projects grew over $5 million. To avoid cost and schedule overruns on school building construction projects, school district administrators should give more focus on these change orders. (Shrestha et al. 2018)

According to Ekanayake et al., (2018), degradation and obsolescence are the most common concerns that buildings encounter. Refurbishment can help solve these problems by updating, changing, extending, renovating, and improving facilities, as well as extending the life of a structure. Nonetheless, renovation projects are risky and complex, posing numerous problems. Hotel renovations are the most common type of project in Sri Lanka. Budget overruns due to superficial designs and construction activities, time overruns due to refining designs to accommodate unanticipated building conditions, limitations to introduce changes to existing building structures, and building occupant disruptions due to simultaneous operations were among the top challenges identified. (Ekanayake et al., 2018)

Trautrims et al. (2020) underline how the United Kingdom's Modern Slavery Act exposed companies to a new ethical challenge in their supply chains. In their article, they describe how the UK construction and facilities management sector responded to the challenge by launching an intra-industry initiative that included a collaborative sense-making process and sector-wide agreement on a joint approach to combat modern slavery in the sector's operations and supply chains. They identify and discuss key areas for supply chain and procurement practitioners tasked with addressing a human rights topic in their operations and supply chains, including motivation, risk hotspots, challenges, and responses, and provide a rich understanding of an intra-industry initiative that serves as a foundation for future research on collective sustainability approaches by businesses that are otherwise commercial competitors. (Trautrims et al. 2020)

According to Yacob et al. (2019), the number of building refurbishment projects in Malaysia has expanded dramatically in recent years, and managing a Building Refurbishment Project (BRP) is demanding and risky. One of the reasons for poor performance has always been identified as having a large number of subcontractors and a large number of building services. According to the findings, uncertainty in the construction process is one of the most critical elements influencing BRP

performance. On that basis, there is still room for BRP performance to be improved. (Yacob et al. 2019)

Nibbelink et al. (2017) found that commercial refurbishments have long been characterised by its added complexity, risk and uncertainty facing the management and delivery of such projects. The findings highlighted the key points and activities during commercial building renovation design where the contractor's contributions are most effective in lowering design risks. The process map is meant to help project teams establish a solid plan to fully benefit from procuring their project through ECI at the early design stage of a commercial building refurbishment project.

The client

Rameezdeen et al. (2019) investigate how green lease practices contribute to long-term sustainability. Green leasing is an under-researched subject in the burgeoning field of sustainable facilities management (SFM). Facilities managers play a crucial role in ensuring these best practices are adopted during the operating stage of a building (SFM). The purpose of this paper is to look into the common barriers to assuring environmental performance when a green leasing agreement is in place between a landlord and a tenant. When the split incentives between the landlord and tenants are taken into account, the study confirms a significant incentive gap and information asymmetry between the landlord and facilities manager, forming a classic double principal-agent problem in which agents act in their own self-interest rather than the principal's. Goal alignment has been proven to be critical for the successful operation and management of a building throughout its life cycle; when goal conflicts exist, they can cause discord between the contracting parties. (Rameezdeen et al. 2019)

Risk allocation in public–private partnership (PPP) water projects was studied by Ameyaw and Chan (2015). It examines risk factors that have been encountered in PPP water infrastructure projects, assesses their related risk levels, and gives an official risk factor list to help sector institutions understand the major hazards involved with such projects in Ghana. There were identified twenty major risk variables with a high impact on water PPPs. Foreign exchange rate, corruption, water theft, non-payment of bills, and political influence are the top five hazards.

Yu and Shen (2013) focus on project requirements management in traditional procurement systems. The lack of a practical framework, misinterpretation of requirements, difficulties in identifying requirements, conflicts between expectation and constraints, complex hierarchy of client's organization, and communication problems in eliciting client requirements were among the processes and limitations identified by the research study. An encompassing project brief and a capable project manager to handle the project requirements are both recommended for capturing and tracing requirements during the project development process.

Uotila et al. (2020) investigated how the high uncertainty and complexity of municipal building renovation projects frequently result in unsatisfactory outcomes. A case study technique is utilized in this study to offer a comprehensive picture of the sources of uncertainty in the early stages of a municipal school rehabilitation

project in Finland. This study shows that more emphasis should be laid on the sources of uncertainty in the early phases of a municipal building refurbishment project for reaching proper decisions. In addition, the study presents suggestions for improving the municipal process.

The Facilities management/Project management perspectives

Hou et al. (2016) examined the factors that affect facilities management (FM) service outsourcing. FM managers commonly regard that tight budget constraints and the absence of strategic planning are two important factors that affect FM service outsourcing. Tight budget limits indicate that clients exert control over their service providers by limiting their budgets, resulting in a series of inefficiencies in the outsourcing process and, as a result, negative outsourcing relationships. A series of strategies are recommended to deal with the challenges posed by budget constraints and the lack strategic planning.

Setting measurable criteria for adopting ethical rules is a crucial issue in construction firms, according to Ho and Oladinrin (2016). Their study outlines a method for evaluating ethical code implementation within an organization based on 30 indicators for good code implementation, with the goal of improving employees' ethical behaviour within the organization. The results of the PLS-SEM indicate a good model fit, and the model has a substantial predictive power and satisfactory model representation. As a result, the approach is appropriate for assessing or monitoring the implementation of codes of ethics within organizations. The most significant influence on "ethical code implementation" is the process of "enacting value". The findings of the FSE show that the general level of ethical code application is high, although there is still space for improvement. (Ho & Oladinrin, 2016)

Rock et al., (2019) examine carbon emissions in the built environment, emphasizing how the operational part of a building's life causes 80% of the damage. In terms of emission reduction potential, office buildings are the most significant building category. Yet, little research has been undertaken to examine the barriers faced by building operators in transitioning to a green operation of the office buildings in their care. Financial, owner-related, tenant-related, technological, regulatory, architectural, and stakeholder interest conflicts were identified as seven categories of hurdles to green office building operation. The main impediment was the difficulty in establishing green operation solutions that enhanced building cost performance or return on investment.

End-users, according to Fuentes (2019), are active co-creators of value in projects. According to the findings, project managers do not pay enough attention to the customer experience. Users are seen as destroyers of value rather than co-creators of value, according to the findings. Furthermore, the data imply that contextual factors such as unethical behaviour, value misalignment, power asymmetry, and a lack of contextual awareness may have an impact on project outcomes.

Yacob et al. (2018) sought to identify potential leadership qualities among building refurbishment project managers. The key features associated with refurbishment

projects are that they are unique, risky, highly complex, and inherently filled with uncertainties that are constant throughout the project's lifecycle. Furthermore, these projects have always been identified with poor project performance that encompasses time, cost, and quality aspects. Despite the increased emphasis in recent years, most past studies that offered remedies to poor performance concerns focused solely on technical measures rather than human impact factors.

Garces's (2020) goal was to uncover prospective leadership traits in building refurbishment project managers. Furthermore, the correlations between the sources of uncertainty and the success of refurbishment projects are established based on leadership skills, offering an overview of possible leadership abilities among building refurbishment project managers. Rehabilitation projects have a substantially different scope of work than new construction projects. The essential characteristics of remodeling projects are that they are unique, risky, complex, and inherently full of uncertainties that persist throughout the project's life cycle. Furthermore, these initiatives have always been associated with poor project performance in terms of time, cost, and quality. (Garces, 2020)

In 2020, Sekhu explored effective involvement of FM specialists in the early design-development process of complex building projects in South Africa. Participants slightly agreed that FM specialists should be involved in the early stage of the design development process. Participants agreed that that FM specialists should be involved during design development stage. Furthermore, there is a moderate possibility of multi-disciplinary interaction causing conflicts among FM specialists and design team during design development process. (Sekhu, 2020)

## Discussion and conclusion

In this paper, we set out to address what research has been carried out on ethics in the use phase of building projects and what important gaps exist in the research as identified.

The main insight is that, given the magnitude of the economic interests involved and the high levels of workmen with little formal qualifications, surprisingly little research has been found covering unethical and unlawful behaviour in the use phase of building projects. In addition, when looking for literature, a very broad concept of ethics had to be used in order to actually produce a real body of literature. The results presented here to a certain extent therefore relates to what must be considered fringe phenomena of ethics within the field of FM – and that there is a wide field of research open to researchers.

Given the above, we can conclude that there is a dire need both for mapping the extent of and the mechanisms driving such behaviour. Based on general characteristics driving behaviour in the construction industry and on trends in FM, it seems highly likely indeed that unethical actions take place in the use phase of construction projects, yet, the existence of such seems to fall outside the attention of most research. This in turn has dire consequences for counter-measures against unethical or even criminal behaviour. Measures implemented without a proper

understanding of the challenges involved is likely to be of little effect. As the situation is now, such an understanding is in fact lacking.

## References


Ameyaw, E.E. and Chan, A.P.C. (2015), "Risk ranking and analysis in PPP water supply infrastructure projects: An international survey of industry experts", Facilities, Vol. 33 No. 7/8, pp. 428-453. https://doi.org/10.1108/F-12-2013-0091

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. International Journal of Social Research Methodology, 8(1), 19–32. https://doi.org/10.1080/1364557032000119616

Ballard , G. & Howell, G., (1998) What kind of Production is Construction? Proceedings IGLC '98

Bredillet, C. (2014). Ethics in project management: some Aristotelian insights. International Journal of Managing Projects in Business.

Colquhoun, H. L., Levac, D., O'Brien, K. K., Straus, S., Tricco, A. C., Perrier, L., Kastner, M., & Moher, D. (2014). Scoping reviews: time for clarity in definition, methods, and reporting. Journal of Clinical Epidemiology, 67(12), 1291–1294. https://doi.org/10.1016/j.jclinepi.2014.03.013

Daudt, H. M. L., van Mossel, C., & Scott, S. J. (2013). Enhancing the scoping study methodology: A large, inter-professional team's experience with Arksey and O'Malley's framework. BMC Medical Research Methodology, 13(1), 48. https://doi.org/10.1186/1471-2288-13-48

Davis, R., Campbell, R., Hildon, Z., Hobbs, L., & Michie, S. (2015). Theories of behaviour and behaviour change across the social and behavioural sciences: A scoping review. Health Psychology Review, 9(3), 323–344. https://doi.org/10.1080/17437199.2014.941722

Drevland, F., Lohne, J., & Klakegg, O. J. (2017, July). Ethical dilemmas in value delivery: theoretical conditions. In 25th Annual Conference of the International Group for Lean Construction (Vol. 1, pp. 145-152).

Dubois, A., & Gadde, L. E. (2002). The construction industry as a loosely coupled system: implications for productivity and innovation. Construction management & economics, 20(7), 621-631.

Ekanayake, Biyanka & Sandanayake, Y. & Ramachandra, Thanuja. (2018). Challenges in Hotel Building Refurbishment Projects in Sri Lanka.

Fuentes, M.E.G. (2019), "Co-creation and co-destruction of experiential value: a service perspective in projects", Built Environment Project and Asset Management, Vol. 9 No. 1, pp. 100-117. https://doi.org/10.1108/BEPAM-02-2018-0052

Garcés, G.. (2020). A literature review on leadership qualities among Project Managers of building refurbishment. Revista ingeniería de construcción, 35(1), 45-59. https://dx.doi.org/10.4067/S0718-50732020000100045

Gorgievski, M.J., van der Voordt, T.J.M., van Herpen, S.G.A. and van Akkeren, S. (2010), "After the fire: New ways of working in an academic setting", Facilities, Vol. 28 No. 3/4, pp. 206-224. https://doi.org/10.1108/02632771011023159

Griffiths, P., Renz, A., Hughes, J., & Rafferty, A. M. (2009). Impact of organisation and management factors on infection control in hospitals: A scoping review. Journal of Hospital Infection, 73(1), 1–14. https://doi.org/10.1016/j.jhin.2009.05.003

Grimshaw, B. (2001), "Ethical issues and agendas", Facilities, Vol. 19 No. 1/2, pp. 43-51. https://doi.org/10.1108/02632770110362794

Gunnerud, G., Evjen, S., Søfting, R., Lædre, O., Kjesbu, N., & Lohne, J. (2019, May). Project Managers: Gatekeepers or Inside Men?. In 10th Nordic Conference on Construction Economics and Organization. Emerald Publishing Limited.

Ho, C.M.F. and Oladinrin, O.T. (2016), "Evaluation of ethical codes implementation – a fuzzy approach", Facilities, Vol. 34 No. 13/14, pp. 924-955. https://doi.org/10.1108/F-04-2015-0015

Hou, H., Ho, D.C.W., Chung, J.K.H. and Wong, K.K.W. (2016), "Tight budget constraints and the absence of strategic planning: An exploratory analysis of FM service outsourcing", Facilities, Vol. 34 No. 7/8, pp. 380-393. https://doi.org/10.1108/F-09-2014-0074

Jalali, A., Hidzir, N.I., Jaafar, M. and Dahalan, N. (2020), "Factors that trigger bullying amongst subcontractors toward intention to quit in the construction projects", Built Environment Project and Asset Management, Vol. 10 No. 1, pp. 140-152. https://doi.org/10.1108/BEPAM-01-2019-0001

Jan-Gaebriel Nibbelink, Monty Sutrisna & Atiq U. Zaman (2017) Unlocking the potential of early contractor involvement in reducing design risks in commercial building refurbishment projects – a Western Australian perspective, Architectural Engineering and Design Management, 13:6, 439-456, DOI: 10.1080/17452007.2017.1348334

Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: advancing the methodology. Implementation Science, 5(1), 69. https://doi.org/10.1186/1748-5908-5-69

Locatelli, G., Mariani, G., Sainati, T., & Greco, M. (2017). Corruption in public projects and megaprojects: There is an elephant in the room!. International Journal of Project Management, 35(3), 252-268.

Locatelli, G.; Geraldi, J.; Konstantinou, E.; Sainati, T. (2020), The Dark Side of Projects: Uncovering Slavery, Corruption, Criminal Organizations, and Other Uncomfortable Topics, Special Issue | Call For Papers, Project Management Journal

Lohne, J. , Drevland, F. & Lædre, O. 2021, 'Agency Problems as a Driver for Crime in the Aec-Industry' In:, Proc. 29th Annual Conference of the International Group for Lean Construction (IGLC). Lima, Peru, 14-16 Jul 2021. pp 383-392

Lohne, J., & Drevland, F. (2019, May). Who Benefit From Crime in Construction? A Structural Analysis. In 10th Nordic Conference on Construction Economics and Organization. Emerald Publishing Limited.

Lohne, J., Drevland, F., and Lædre, O. (2021). "Agency problems as a driver for crime in the AEC-industry" Proc. 29th Annual Conference of the International Group for Lean Construction (IGLC29), Alarcon, L.F. and González, V.A. (eds.), Lima, Peru, pp. 383–392, doi.org/10.24928/2021/0123, online at iglc.net.

Lohne, J., Engebø, A., & Lædre, O. (2020). Ethical challenges during construction project handovers. International Journal of Project Organisation and Management, 12(1), 31-53.

Lohne, J., Kjesbu, N. E., Engebø, A., Young, B., & Lædre, O. (2019). Scoping literature review of crime in the AEC industry. Journal of Construction Engineering and Management, 145(6), 03119002. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001648

Lohne, J., Svalestuen, F., Knotten, V., Drevland, F.O. and Lædre, O. (2017), "Ethical behaviour in the design phase of AEC projects", International Journal of Managing Projects in Business, Vol. 10 No. 2, pp. 330-345. https://doi.org/10.1108/IJMPB-06-2016-0049

Lohne, Jardar; Haavaldsen, Tore and Lædre, Ola (2016). The Virtue of Sustainability. In: Proceedings of the CIB World Building Congress 2016, Volume III. Building up business operations and their logic.

Madimetja Solomon Sekhu (2020). “An Investigation of the Early Involvement of Facilities-Management Specialists into the Traditional Design-Development Process: the Causes of Conflicts.” School of Construction Economics (Faculty of Engineering and the Built Environment) of the University of Pretoria. https://repository.up.ac.za/bitstream/handle/2263/79655/Sekhu_Early_2020.pdf?sequence=1&isAllowed=y

Mirsky, R. and Schaufelberger, J., 2014. Professional Ethics for the Construction Industry: Routledge

O’Donnell, N., Kappen, D. L., Fitz-Walter, Z., Deterding, S., Nacke, L. E., & Johnson, D. (2017). How multidisciplinary is gamification research? Results from a scoping review. In CHI PLAY’17 Extended Abstracts. The ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (pp. 445– 452). Association for Computing Machinery (ACM). https://doi.org/10.1145/3130859.3131412

Oyewobi, L.O., Jimoh, R., Ganiyu, B.O. and Shittu, A.A. (2016), "Analysis of causes and impact of variation order on educational building projects", Journal of Facilities Management, Vol. 14 No. 2, pp. 139-164. https://doi.org/10.1108/JFM-01-2015-0001

Pemsel, S., Widén, K. and Hansson, B. (2010), "Managing the needs of end-users in the design and delivery of construction projects", Facilities, Vol. 28 No. 1/2, pp. 17-30. https://doi.org/10.1108/02632771011011378

Pramen P. Shrestha, Ph.D., P.E., M.ASCE; and Haileab Zeleke (2018) “Effect of Change Orders on Cost and Schedule Overruns of School Building Renovation Projects” Journal of Legal Affairs and Dispute Resolution in Engineering and Construction/ Volume 10 Issue 4 - November 2018 0.1061/(ASCE)LA.1943-4170.0000271

Rameezdeen, R., Zuo, J., Ochoa Paniagua, J., Wood, A. and Do, P. (2019), "Ensuring environmental performance in green leases: the role of facilities managers", Facilities, Vol. 37 No. 9/10, pp. 527-549. https://doi.org/10.1108/F-01-2018-0017

Rizk, R., Sobh, D., Abou Yassin, A. and Hamzeh, F. (2018). “Studying the mindset of corruption in the construction industry- A Lean Perspective.” Proc. 26th Annual conference IGLC, Chennai, 316-325.

Rock, S., Hosseini, M.R., Nikmehr, B., Martek, I., Abrishami, S. and Durdyev, S. (2019), "Barriers to “green operation” of commercial office buildings: Perspectives of Australian facilities managers", Facilities, Vol. 37 No. 13/14, pp. 1048-1065. https://doi.org/10.1108/F-08-2018-0101

Roper, K.O, Payant, R.P. (2001), The Facility Management Handbook. Amacom, New York.

Roper, K.O. (2017), "Facility management maturity and research", Journal of Facilities Management, Vol. 15 No. 3, pp. 235-243. https://doi.org/10.1108/JFM-04-2016-0011

Sommerville, J. (2011), "Ethical views of micro-enterprises delivering project and asset management services in west-central Scotland", Built Environment Project and Asset Management, Vol. 1 No. 1, pp. 91-103. https://doi.org/10.1108/20441241111143803

Trautrims, A, Gold, S, Touboulic, A, Emberson, C, Carter, H. The UK construction and facilities management sector's response to the Modern Slavery Act: An intra-industry initiative against modern slavery. Bus Strat Dev. 2020; 1– 15. https://doi.org/10.1002/bsd2.158

Tucker, M. and Roper, K (2015). Synergy of FM competences. In: EuroFM Research Papers 2015 (1.3). (14th EuroFM Research Symposium, 01 June 2015 - 03 June 2015, Glasgow, UK).

Uotila, Ulrika, Arto Saari, and Juha-Matti Junnonen. 2020. "Uncertainty in the Early Phase of a Municipal Building Refurbishment Project—A Case Study in Finland" Buildings 10, no. 8: 137. https://doi.org/10.3390/buildings10080137

Vrijhoef, Ruben (2011) Supply chain integration in the building industry - The emergence of integrated and repetitive strategies in a fragmented and project-driven industry, Delft University Press, ISBN 978-1-60750-962-2 (print)

Walker, D. (2014), “Editorial”, International Journal of Managing Projects in Business, Vol. 7 No. 4, p. 768.

Wold, J., Lædre, O., & Lohne, J. (2019). Questionable Practice in the Processing of Building Permits in Norway. In Proceedings of the 27th Annual Conference of the International. Group for Lean Construction, Dublin, Ireland (pp. 1151-62).

Wong Sze Yu Dolphin, Ahmad Assad Mohammad Alshami, Salman Tariq, Vincent Boadu, Saeed Reza Mohandes, Taiwo Ridwan & Tarek Zayed (2021) Effectiveness of policies and difficulties in improving safety performance of repair, maintenance, minor alteration, and addition works in Hong Kong, International Journal of Construction Management, DOI: 10.1080/15623599.2021.1935130

Xu, J., Lu, W., Xue, F., Chen, K. (2019). Cognitive facility management: Definition, system architecture, and example scenario. Automation in Construction, 107, 102922.

Yacob, R., Saruwono, M., & Ismail, Z. (2018). A Review of Leadership Qualities among Building Refurbishment Project Managers. International Journal of Engineering & Technology, 7(4.22), 126-131. doi:http://dx.doi.org/10.14419/ijet.v7i4.22.27863

Yacob, R., Saruwono, M., & Ismail, Z. (2019). Managing Uncertainty from Planning and Design to Construction Process of Building Refurbishment Projects: A Proposed Conceptual Approach. International Journal of Sustainable Construction Engineering and Technology, 10(1). Retrieved from https://publisher.uthm.edu.my/ojs/index.php/IJSCET/article/view/4326

Yu, A.T.W. and Shen, G.Q.P. (2013), "Problems and solutions of requirements management for construction projects under the traditional procurement systems", Facilities, Vol. 31 No. 5/6, pp. 223-237. https://doi.org/10.1108/02632771311307098

Yu, A.T.W., Chan, E.H.W., Chan, D.W.M., Lam, P.T.I. and Tang, P.W.L. (2010), "Management of client requirements for design and build projects in the construction industry of Hong Kong", Facilities, Vol. 28 No. 13/14, pp. 657-672. https://doi.org/10.1108/02632771011083694m

# The importance of functional characteristics and economic environment on the value of real estate

**Igor Pšunder**

University of Maribor
Faculty of Civil Engineering, Transportation Engineering and Architecture, Slovenia
igor.psunder@um.si

## Abstract

Analysis of highest and best use is an extremely important premise in appraising the value of real estate. Not only is it important in determining the hope value of undeveloped land, but it is also extremely important in perceiving the functional and economic obsolescence of real estate. The health crisis due to COVID-19 will certainly change the need for different types of real estate. Less work on business premises, more digital business and e-commerce, and less business travel will certainly affect the need for business and commercial real estate, which may be reflected in the economic or functional obsolescence of real estate. The present paper describes changes in perceiving functional and economic obsolescence and discusses the possible impact of the health crisis on the obsolescence of real estate and, consequently, the impact on their value.

Keywords: highest and best use, functional obsolescence, economic obsolescence, real estate value, COVID-19

## Introduction

The theory of the highest and best began in the early years of the 19th century, but more widely developed in the last century. Munizzo and Virruso Musial (2010) write that the highest and best use is based on the theory of highest productivity, which in appraising of real estate shows the highest possible value that the assessed real estate would achieve in the market. This is especially important when the basis of value is market value. International Valuation Standards (2020) suggest the premise of highest and best use whenever the basis of value is market value. International standards also state, that the market value of an asset will reflect its highest and best use[59]. The highest and best use is the use of an asset that maximises its potential and that is possible, legally permissible, and financially feasible. It may be for continuation of an asset's existing use or for some alternative use. This is determined by the use that a market participant would have in mind for the asset when formulating the price that it would be willing to bid.

[59] See paras 140.1-140.5.

Other standards, such as RICS[60] Valuation - Professional Standards or EVA[61], define the analysis of the highest and best use in a similar way.

Pšunder (2016) states that the analysis of the highest and best use is most often ignored, omitted, or poorly performed procedure in appraising the value of real estate. Thus, errors and shortcomings in the valuation of real estate in Slovenia most often derives from errors and shortcomings in the analysis of the highest and best use.

The analysis of the highest and best use is not only performed to determine the most optimal construction of unbuilt property, but also indicates economic or functional obsolescence of a real estate. Namely, if it is possible to build a construction on a hypothetically undeveloped land, which would give a higher residual value of the land than the existing construction, then the existing construction is not economically optimal, i.e. it is economically obsolete. Similar conclusion can be drawn from the analysis of the highest and best use of existing building: if an improvement can be found that would increase the highest and best use of existing building, then the existing building is not functionally optimal. We can talk about functional obsolescence.

As already mentioned, the principles of highest and best use can also be used in cost approach to real estate valuation for determining functional end economic obsolescence.

**Economic and Functional Obsolescence of Real Estate**

International Valuation Standards (2020) define functional obsolescence as any loss of utility resulting from inefficiencies in the subject asset compared to its replacement such as its design, specification or technology being outdated, while economic or external obsolescence is defined as any loss of utility caused by economic or locational factors external to the asset. If we can claim that functional obsolescence originates from real estate and is of an internal nature, economic obsolescence originates from the environment. CFI (2021) defines, that unlike functional obsolescence, which occurs within a property, economic obsolescence occurs outside the property and is beyond the control of the property owner. Also, Hojnik (2014) explains that economic obsolescence is a loss of value due to effects, events or conditions that are external and not under the control of the owner. Economic obsolescence can derive from reduced product demand, overcapacity of the industry, disruptions in the supply of materials, increased costs of materials or labour, increased competition, legislation, and ecological aspects.

Functional obsolescence can derive from poor design or excess capital cost, but the first sign of functional obsolescence is usually excess operating cost or sub optimal income form the real estate. Economic obsolescence on the other hand derives from changes in market demand, desire, or expectation. First sign of economic obsolescence is usually income shortfall.

[60] Royal Institution of Chartered Surveyors.
[61] European Valuation Standards.

The changing economic environment resulting from the digital transformation has been further intensified in the face of the health crisis due to COVID-19. Online distant shopping has increased the need for high-tech logistics centres close to large urban centres, while at the same time putting classic stores to the test, especially those with technical goods and clothing. Remote meetings have affected the demand for short-term business accommodation, while the tendency to work from home reduces the need for classic office space, which will be relatively smaller in the future, while changing their technical and architectural design.

These shifts in the economic environment affect the functional requirements, especially of commercial real estate, and the smaller needs for such real estate indicate the possibility of economic obsolescence.

Both types of obsolescence, functional and economic, are explicitly assessed only in the cost approach, but their occurrence is also perceived in the market comparisons approach and in income approach as a reduction in the market price or rent.

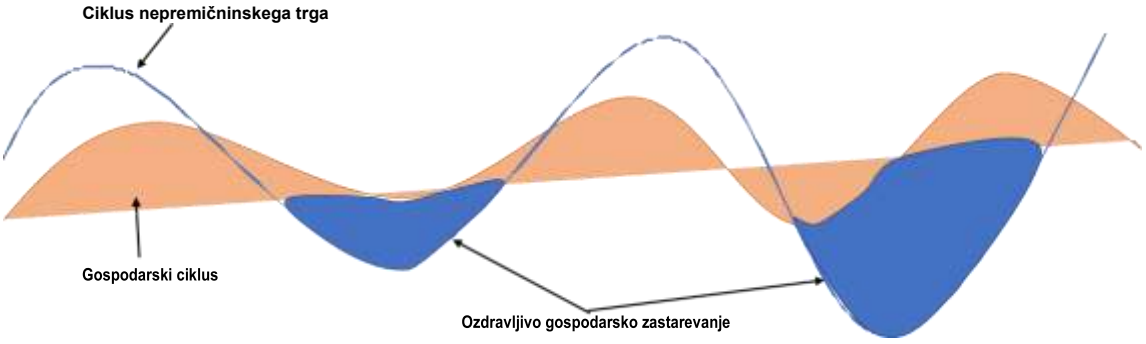
**Curable and incurable obsolescence**

Obsolescence can be curable or incurable. We speak of curable obsolescence when it can be technically eliminated and the cost of eliminating it is less than the increase in the value of the property on the market or other benefits. Functional obsolescence can be classified as curable, as it can be eliminated, and this elimination makes economic sense.

Economic obsolescence originates from the location environment or from changed economic conditions. Hojnik (2014) explains that we speak of location obsolescence when the location of an asset results in either a decrease in the revenue generated by the asset or an increase in the operating costs of the asset. Location obsolescence often refers to changes in the neighborhood. We speak of economic obsolescence due to changes in economic conditions when the appraised asset is no longer able to generate income at the appropriate (required) rate of return.

Economic obsolescence is generally incurable, but it can disappear on its own if the factors that caused it change.

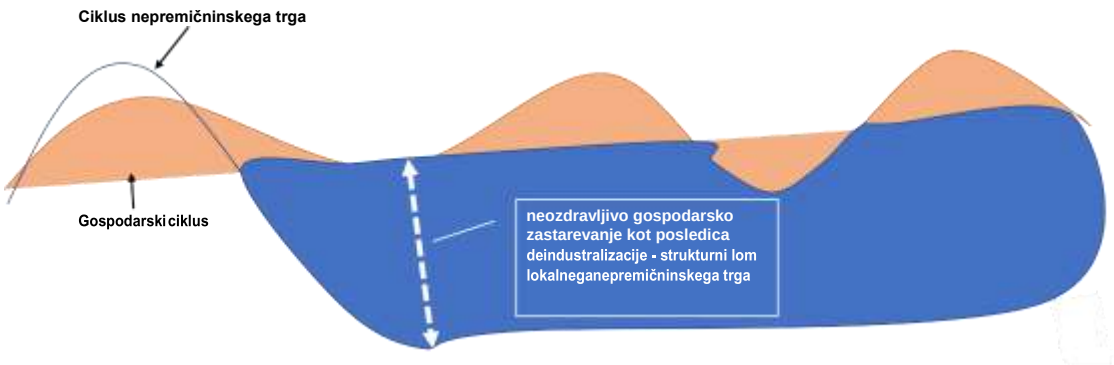
As shown in Figure 1, economic obsolescence is caused by downturn of the real estate cycle (ciklus nepremičninskega trga) because of a decline of the economic activity (gospodarski ciklus). This economic obsolescence could not be eliminated by reconstructions or investments in real estate. However, such economic obsolescence may disappear (ozdravljivo gospodarsko zastaranje) if there is an increase in economic activity and an upswing of real estate market.




*Source: Hojnik at al. (2020) after Javornik, 2014*

Figure 1: Curable economic obsolescence as a result of cyclical economic movements

However, an economic turnaround is not always the case. We often witness a long-term disturbance in the economic environment, or a change that cannot be recovered at all (Figure 2). In such a case, we are talking about incurable economic obsolescence (neozdravljivo gospodarsko zastarevanje).




*Source: Hojnik at al. (2020) after Javornik, 2014*

Figure 2: Incurable economic obsolescence as a result of the structural breakdown of the local real estate market

## Determining functional and economic obsolescence

Functional obsolescence is usually calculated by determining cost to cure and comparing it with present value of excess operating expenses due to functional obsolescence. If cost to cure is lower, then it is feasible to cure, so functional obsolescence equals cost to cure. In case the present value of excess operating expenses is lower, than functional obsolescence is incurable and equals the calculation of present value of excess operating expenses.

Economic obsolescence usually manifests itself as a drop in income, so it is reasonable to include income shortfall in calculation of economic obsolescence. However, income shortfall method is not equally well accepted in all appraisal environments and in some countries or states is even considered problematic

(Mangan, Rotkowski, 2016). Despite this we believe that it is the most accurate indicator of economic obsolescence.

The formula for calculation of economic obsolescence with income shortfall method is as follows:

| | |
|---|---|
| | replacement or reproduction cost new les depreciation (before economic obsolescence) |
| (less) | income approach value |
| (equals) | economic obsolescence |

(eq. 1)

Economic obsolescence can be calculated directly from income shortfall, which we believe is better procedure. In case the income shortfall is caused exclusively by economic obsolescence, and it is assumed that the change will last permanently, economic obsolescence can be calculated by equation below:

$$EO = \frac{\Delta NOI}{R}$$

(eq. 2)

where:

EO = economic obsolescence,

ΔNOI = shortfall of net operating income (caused by economic obsolescence), and

R = capitalization rate.

But, if we can assume a limited duration of the fall in operating profit, the equation below should be used:

$$EO = \Delta NOI \cdot \frac{(1+r)^N - 1}{(1+r)^N \cdot r}$$

(eq. 3)

where:

EO = economic obsolescence,

ΔNOI = shortfall of net operating income (caused by economic obsolescence),

N = duration (years) of economic disruption, and

r = discount rate.

When calculating the extent of economic obsolescence resulting from a temporary economic disruption, it is very important to predict the duration of the economic disruption as accurately as possible. The extent of economic obsolescence changes significantly with duration, especially when the duration of the economic disruption is short.

To illustrate the impact of the duration of economic disruption on economic obsolescence, we performed the example shown in Figure 3. We calculated the economic obsolescence if the change in net income is 1 monetary unit (e.g. 1 EUR) and at discount rate of 7%. The duration of the economic disturbance was assumed to be between 1 and 50 years.

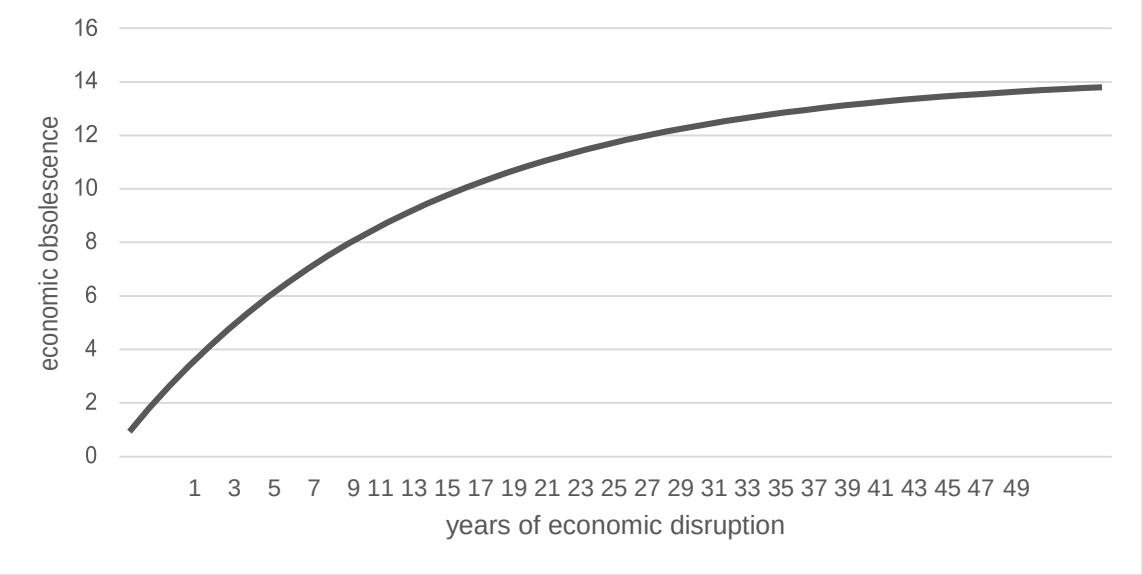


Figure 3: Economic obsolescence depending on the duration of the economic disruption

The figure shows that economic obsolescence increases significantly with the duration of the economic disruption. For example, the economic obsolescence for the duration of the economic disruption of 5 years is more than twice as high as for the duration of the economic disruption of 2 years. Therefore, when assessing economic obsolescence, the duration of the economic disruption must be predicted as accurately as possible.

**Impact of COVID-19 on economic and functional obsolescence**

What we are experiencing currently with the COVID-19 pandemic and stay-at-home orders may affect the value of businesses and other assets in the coming months or possibly years. The full economic implications of the pandemic and new government regulations have yet to be realized, and in many cases may affect all aspects of the business, not just assets such as real estate and tangible property. (SobelCo, 2021).

COVID-19 certainly caused changes in real estate requirements. Combined with process of digitalization, real estate will certainly experience some changes in technical requirements and also in demand for certain types of real estate.

As it is obvious that holiday facilities are already recovering from vacancies which we witnessed in year 2020, it is still unclear when and to what extent will recover real estate related to business travel, real estate related to air transport and the like. It is also difficult to evaluate the changes that will occur due to working from home. It is quite possible that the full extent of these changes will be noticeable in business premises only in the coming years.

## Conclusion

Changes in the business environment have led to changed requirements for the functional characteristics of real estate, as well as changes in the way of life and work affect the changes in the demand for certain types of real estate. All this is reflected in functional and economic obsolescence of real estate.

In the last two years, we have witnessed a rare and, hopefully, one-off occurrence of the global COVID-19 pandemic, which temporarily changes the needs for certain types of real estate, as well as affects long-term business models, which may result in changed demand for certain types of real estate.

As the changed expectations for real estate functionalities and the changed circumstances in the economic environment cause a drop in rents for existing real estate, it is obvious that the income component of value must be included in the cost approach to real estate appraisal. However, we are facing another new circumstance. Economic obsolescence is no longer the result of a deterioration in the environment, changed legal norms or permanent changes in the needs for a certain type of real estate, but during the pandemic we faced the "temporary unnecessariness" of some real estate. This circumstance suggests that we may also encounter economic obsolescence, which is not permanent.

As we presented in the present text, the solution lies in appraising of obsolescence with models based on rent changes. Although some environments are still reluctant to such methods, there is actually no alternative that offers a credible assessment of functional and economic obsolescence with the same degree of certainty.

## References


1. Munizzo M. A., Virruso Musial L. (2010). *General Market Analysis and Highest and Best Use*. South-Western Educational Pub.

2. The International Valuation Standards Council (2020) *International Valuation Standards*

3. Pšunder I. (2016). *Kaj pove analiza najgospodarnejše uporabe?* SIR*IUS, 1/2016, Slovenski inštitut za revizijo, Ljubljana.

4. CFI (2021). *What is Economic Obsolescence (Real Estate)?* Online; available at: https://corporatefinanceinstitute.com/resources/knowledge/other/economic-obsolescence-real-estate/ (27.8.2021)

5. Hojnik G. *Merjenje ekonomske zastarelosti*. SIR*IUS, 03/2014. Slovenski inštitut za revizijo, Ljubljana.

6. Hojnik G., Javornik S., Brilli A., Kern J., Zupančič D., Pšunder I.: *Gospodarska zastarelost pri ocenjevanju pravic na nepremičninah*. SIR*IUS, 3/2020. Slovenski inštitut za revizijo, Ljubljana.

7. Mangan M., Rotkowski A. (2016). Economic Obsolescence and Market Value. 46th Annual Taxation Conference Appraisla for Ad Valorem Taxation.

8. SobelCo (2021). COVID-19, Economic Obsolescence and Your Assets' Value. Online; available at: https://sobelcollc.com/blog/covid-19-economic-obsolescence-and-your-assets%E2%80%99-value (27.8.2021)

# Digitization of services within the housing corporation sector: state of affairs, statemensts and opportunities for the future

**Karima Chafia**

KWH
karima.chafia@kwh.ln

**JanVeuger**

Noorder Ruimte Centre of Applied Research on Area Development
Hanze University of Applied Sciences, The Netherlands.
j.veuger@pl.hanze.nl

## Abstract

In this article, the results collected every year by KWH (Quality Centre for Housing Associations in the Rental Sector) with its tenant surveys are further analysed to map out the situation with respect to the use of digital channels within the housing corporation sector. Furthermore, we will discuss in this article how the use of online channels relates to other sectors and will attempt to provide explanations for the degree of digitization in the sector. KWH is a national quality centre for and by housing corporations. KWH is an association that offers its members research to map tenants' valuation of customer processes. The aim of this research is of course to improve the services provided by housing corporations towards tenants. Of the approximately 330 housing corporations in the Netherlands, more than 150 are affiliated with KWH. These housing corporations conduct research into the services around multiple processes, such as the change process (leaving or moving into a housing corporation's house), reporting and completing a repair request, carrying out scheduled maintenance and having contact with the housing corporation. For this research, KWH questions the tenants of the housing corporations. Since 2014, KWH has also been a partner of Aedes (the sector association of housing corporations) within the Aedes benchmark. Nearly 300 housing corporations participate in this benchmark. One of the components is the 'Lessee's assessment', with which the performance levels of the housing corporations in the area of service provision towards the tenant are compared. KWH annually collects the results from 275 corporations in this area and performs the analyses. This gives KWH good insight into trends and developments within the sector. In this article, the results that KWH collected annually since 1995 are analysed further in order to map out the use of digital channels within the sector. Because of the comparability of results, the focus here is on the results from 2015 through 2017. Furthermore, we will discuss in this article how the use of online channels relates to other sectors and will attempt to provide explanations for the degree of digitization in the sector.

Keywords: digitization, service, online channels, benchmarking.

**Tenant survey**

KWH uses five different questionnaires for the tenant valuation surveys. The following figure shows an overview of these questionnaires and the target group.

| Questionnaire | Target group | Subjects |
|---|---|---|
| **Contact with the corporation** | All tenants of a corporation | Have you had contact?<br>How did you have contact?<br>How did you experience that contact? |
| **Search and moving into a home** | Tenants who recently (in the last month) moved into a housing corporation's house | How was the search for a home?<br>What did people think of the viewing?<br>What did people think of the delivery? |
| **Leaving a home** | Tenants who recently (in the last month) moved out of a housing corporation's house | How was the cancellation of the tenancy?<br>What did people think about inspections by the corporation?<br>What did people think of the final billing statement? |
| **Repairs** | Tenants for whom a repair has recently been done | How did people experience reporting the repair request?<br>What did people think about the execution of the repair? |
| **Maintenance** | Tenants for whom major or scheduled maintenance has recently been done | What did people think of the information that was received in advance?<br>What did people think about the contact during the project?<br>What did people think about the execution of the maintenance? |

*Table 1: KWH questionnaire, target groups and subjects (Source KWH tenant surveys 2015 through 2017)*

On a monthly basis, corporations provide files with details of tenants who are eligible for the above questionnaires. In 2017, 457,009 tenants received a questionnaire. Of these, 122,119 completed the questionnaires in full. Tenants whose e-mail address is available receive a questionnaire via e-mail. In addition, KWH conducts telephone research for all housing corporations to ensure representativeness. For corporations with an insufficient number of e-mail addresses, relatively more calls are made.

KWH asks the tenants in two questionnaires which channel the tenant has used. Below are the exact questions for each questionnaire, which we will discuss in this article:

*(1) Contact with the housing corporation:*

1. Have you had contact with your housing corporation during the past 6 months?
2. How did you contact your housing corporation the last time?
3. What score do you give for the contact with your housing corporation?
4. How do you prefer to contact your housing corporation?

*(2) Repairs:*

1. How did you report your repair request?

These questions have not changed in the past three years, so that the development over the past three years (2015-2017) can be made clear.

**The use of online channels in the housing corporation sector 2015-2017**

When we ask a random tenant of a housing corporation whether he or she has had contact with his/her housing corporation in the past 6 months, 57% answer yes. This percentage has been very stable over the past three years (57.5% in 2015, 57.0% in 2016 and 57.3% in 2017). The table below shows which channels tenants have used in the past three years when they contacted the housing corporation.

*Table 2: Use of online channels 2015-2017 (Source KWH)*

| Channel | Use in 2015 (%) | Use in 2016 (%) | Use in 2017 (%) |
|---|---|---|---|
| E-mail | 11.4 | 11.5 | 12.9 |
| Website (form or tenant portal) | 5.8 | 4.7 | 5.8 |
| Telephone | 66.1 | 67.6 | 65.3 |
| Personally with an employee at the office | 11.4 | 11.5 | 9.7 |
| Personally with an employee in the neighbourhood | 2.8 | 2.7 | 3.3 |
| Other | 2.5 | 2.1 | 2.9 |

The table shows that the use of online channels (e-mail and website) has only increased minimally in the past 3 years: from 17.2% in 2015, after a dip in 2016 (16.2%), to 18.7 % in 2017. The table above is about all possible contacts with the housing corporation. It is of course possible that some contact reasons are less suitable for the use of digital channels, such as reporting inconvenience or a specific question about the rent increase. That is why it is also interesting to see which channels are used when reporting a repair request. After all, this is a customer process that lends itself very well to digitization.

*Table 2: Use of online channels for repair requests 2015-2017 (Source KWH)*

| Channel when reporting a repair request | Use in 2015 (%) | Use in 2016 (%) | Use in 2017 (%) |
|---|---|---|---|
| E-mail | 7.5 | 6.9 | 6.8 |
| Website (form or tenant portal) | 7.5 | 8.5 | 11.3 |
| Telephone | 77.6 | 75.1 | 72.4 |
| Personally with an employee | 6.4 | 8.4 | 8.4 |
| In writing | 1.0 | 1.1 | 1.1 |

Even zoomed in on this process, there is only a slight increase visible, from 15.0% in 2015 to 18.1% in 2017, as a result of which the pressure on the telephone channel has decreased somewhat.

**Difference in digitization between housing corporations and other sectors**

After seeing these results, the question arises of how it is possible that the use of digital channels in the housing corporation sector has only slightly increased, while in other sectors digitization has boomed. To illustrate: 40% of the MijnOverheid accounts were activated in the autumn of 2017. In 2015, this percentage was only 14% ('Hoezo MIJNoverheid?' Research into bottlenecks for citizens with MijnOverheid (2017)). An increase of 285%. Within the banking sector, research agency Nepa (2017) conducted research into the use of internet banking in seven European countries (among 7,000 respondents). Together with Sweden, the Netherlands was at the top of the list, with 97% of the (adult) population using internet banking. According to a survey by Statistics Netherlands, this percentage has increased from 77% in 2015 to 82% in 2017. The difference between the two studies has to do with questioning different age groups. Later in this article, we look at possible explanations for the lagging use of digital channels in the sector.

**Has the sector still invested insufficiently in the digitization of customer processes?**

Research among the members of KWH in 2015 showed that 37% of the housing corporations had a tenants' portal at the time of the study (first quarter of 2015 among 71 housing corporations). Another 24% indicated that the tenant portal was not yet available but would be ready in the coming year (2016). For 17% of the housing corporations, the plan to put a tenant's portal into use existed but was not yet concrete enough, and only 22% of the housing corporations surveyed had no plans yet to add a tenant's portal. In 2017, this study (albeit with different questions) was repeated by Aedes within the Aedes benchmark among 263 corporations (Aedes benchmark 2017). In this study, 54% of the housing corporations indicated that they have a tenant portal. We know from the same benchmark that ICT expenditure in the sector have risen by 10% from € 70 per VHE to € 77 per VHE. The latter, of course, does not necessarily mean that these investments have also been made in the field of digitization of customer contacts. The sector does, though, seem to have made an effort in this area. The question is whether this is the right effort? Is a tenant's portal the right tool to digitize for this sector? To what extent are tenants willing to use a tenant's portal if they know in advance that they will not use the portal often? From a large-scale reputation survey in mid-2017 (Aedes survey on sector reputation (2017)) among more than 14,000 tenants, it emerged that 21% of tenants had no contact with the housing corporation in the past year, and 42% contacted them once or twice.

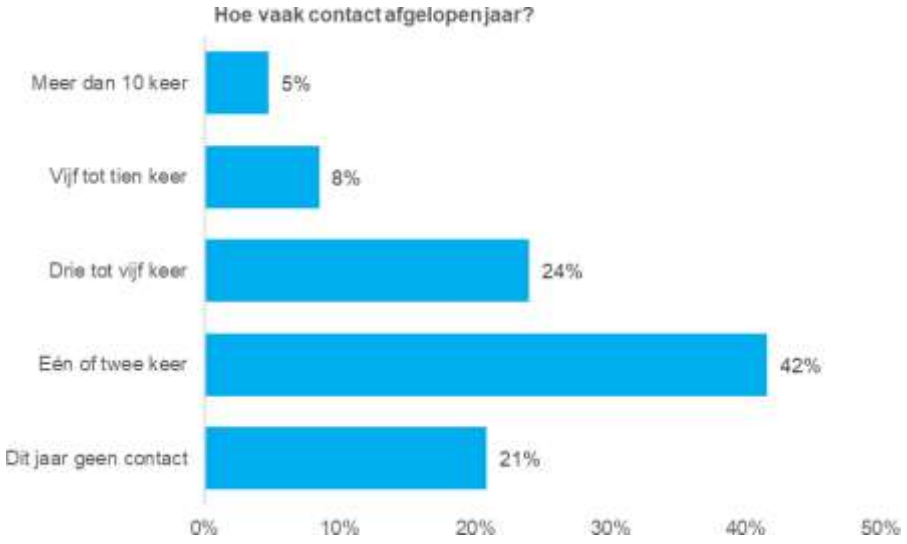



*Figure 1: Frequency of contact in the last year? (source: KWH)*

To what extent does a low contact frequency stand in the way of a successful tenant's portal? Is a tenant's portal too high of a threshold at such a low contact frequency? The Government has solved this, for example, by linking MijnOverheid and DigiD to several other agencies so that the frequency and thus also the use increases. For the housing corporation sector, it is certainly worthwhile to conduct specific research into this.

**Quality of online services is insufficient?**

The use of digital channels will increase if the services offered through these channels are also assessed as good. In this paragraph, we therefore look at how the contact via digital channels is assessed.

*Table 3: Assessment of online channels 2015-2017 (Source KWH)*

| Channel | Assessment in 2015 Average report score | Assessment in 2016 Average report score | Assessment in 2017 Average report score |
|---|---|---|---|
| E-mail | 6.9 (SD 1.76) | 6.9 (SD 1.86) | 6.7 (SD 2.08) |
| Website (form or tenant portal) | 7.0 (SD 1.71) | 7.1 (SD 1.69) | 7.0 (SD 1.84) |
| Telephone | 7.2 (SD 1.58) | 7.2 (SD 1.58) | 7.1 (SD 1.81) |
| Personally with an employee at the office | 7.4 (SD 1.52) | 7.4 (SD 1.61) | 7.3 (SD 1.87) |
| Personally with an employee in the neighbourhood | 7.2 (SD 1.60) | 7.2 (SD 1.61) | 7.2 (SD 1.86) |

The table above indeed shows that the digital channels are assessed lower than the traditional channels. This applies in particular for contact via e-mail. After a negative

experience via a channel, the tenant will be inclined to try a different channel the next time, so that the use of digital channels does not easily increase.

**Digital does not fit the wishes of the tenants?**

Which channel does the tenant actually prefer to use to contact the housing corporation? The following table shows the preferred channels of the tenants in the past two years.

*Table 4: Preferred channels for tenants 2016-2017 (Source KWH)*

| Preferred channel | 2016 (%) | 2017 (%) |
|---|---|---|
| E-mail | 15.9 | 16.6 |
| Website (form or tenant portal) | 2.1 | 3.0 |
| Telephone | 56.4 | 54.6 |
| Personally with an employee at the office | 15.0 | 14.0 |
| Personally with an employee in the neighbourhood | 7.2 | 6.6 |
| Other | 3.4 | 5.2 |

Of course, the preferred channel is highly dependent on the contact reason, but if each tenant were to use his favourite channel, then telephone contact would decrease, and personal contact would increase. Digital does not currently have the preference of the tenant. This preference is of course based on the image that the tenant has of those contact channels. This image can but does not have to be based on previous experiences with that channel.

**Conclusions and recommendations**

Based on the results for 2015-2017, which KWH collects annually on the use of digital channels within the sector, we can draw the following conclusions and propose questions for further research. Fewer than twenty percent of tenants have digital contact with their housing corporation. The use of digital channels thus lags significantly behind compared to other sectors. Although it seems that enough has been invested in digitization, the quality of digital channels is lagging behind traditional channels. Further research could focus on how to improve the quality of digital channels. Another challenge for the sector is how a tenant's portal can be used with a low contact frequency.

In surveys in which tenants are asked about their opinion on, for example, customer visions or business plans, KWH regularly asks whether the corporation should invest in personal contact or in digitization. Three quarters of the tenants prefer investment in personal contact. This clearly indicates that the need for personal contact in this sector is great. Perhaps tenants experience the relationship with their housing corporation differently than with a bank or a municipality, which makes them prefer to have personal contact. Can personal and digital not go hand in hand? Digital is,

however we look at it, the future. The challenge for the housing corporations is not to make digitization itself the priority, but to focus on a good customer relationship and then the digitization.

**Refernces:**


1. Research into the use of internet banking in seven European countries by Nepa on behalf of Trustly (2017)

2. CBS (statline): Internet; toegang, gebruik en faciliteiten ('Internet: access, use and facilities') (2015-2017)

3. 'Hoezo MIJNoverheid?' ('Why MIJNoverheid') Research into bottlenecks for citizens with MijnOverheid (2017)

4. KWH-Huurdersonderzoek ('KWH tenant study') 2015-2017

5. Aedes benchmark 2017

6. Research on sector reputation by Reputatiegroep and KWH commissioned by Aedes (2017).

# Sustainable Building Engineering – A healthy and beautiful district in a healthy and beautiful historical environment

**Mahgol Afshari**
Norwegian University of Science and Technology, Norway
mahgola@estud.ntnu.no

**Benjamin Goubel**
**Théo Lille**
**Ambre Kauffmann**
**Alexandre Jacques**
**Céline Desissert**
**Corentin Gaillard**
**Pierre Vedeau**
**Alexis Beaugrand**
**Lucas Germain**
ESITC Caen - École Supérieure d'Ingénieurs des Travaux de la Construction, France
benjamin.goubel@esitc-caen.net , theo.lille@esitc-caen.net , ambre.kauffmann@esitc-caen.net , alexandre.jacques@esitc-caen.net , celine.desissert@esitc-caen.net , corentin.gaillard@esitc-caen.net , pierre.vedeau@esitc-caen.net , alexis.beaugrand@esitc-caen.net , lucas.germain@esitc-caen.net

**Elbes Muniz**
Universidade do Algarve, Portugal
elbesgborba@hotmail.com

## Abstract

This paper is performing the result of an international workshop which was held in Caen by ESITC and it focuses on the impacts that this workshop had on international students, in terms of technical and non-technical aspects. The workshop was intended for the design and construction of a real project in Honfleur which is a small town, about 7700 inhabitants, located on the south bank of the Seine estuary opposite Le Havre just next to the outlet of the Pont de Normandie in France. This article focuses on modeling new plans for the existing buildings in this area and renovating them and also modeling new buildings with the mixture of various functions like housing, economic activities, stores and market, culture and sport spaces, green spaces, and so on for the age diversity from newborn to old independent people. The modeling is based on healthy bio and geo and eco-materials. The used energy is renewable and sustainable and no fossil energy should be used for this project. Methods used in the project are design building and working with professional software like Revit, BIM, Sketchup, and Autocad, site visits, lab work, collecting theoretical data, guidelines, collaboration with experts from academic institutions and professional companies. This workshop not only

helped the students to gain technical skills and experiences but also made the situation for them to have the chance to improve their English and international relationship, involved in teamwork with students from different European countries and do some practices in managerial aspects.

Keywords: sustainability, renewable energy, functionality, existing buildings, sustainable buildings, workshop.

## Introduction

The international workshop of ESITC in Caen was open to foreign students for almost four weeks and was an original educational device for studying international cooperation. It allowed multi-disciplinary and multi-cultural teams to face real bidding projects. For a month, different teams established their files. They benefited from the comprehensive educational support provided by ESITC Caen's team and professionals from related departments, a combination of tutoring, professional theoretical courses, and conferences. This paper is the study of one of the groups in the Sustainable Building Engineering workshop which aims to address architectural aspects, structural aspects, thermal and sound insulation, and some other detailed perspectives of the three main types of buildings. In addition, it focused on non-technical benefits which this workshop had for the participants.

The site of the project was located in a small town in France which is called Honfleur and it was placed on the south bank of the Seine estuary opposite Le Havre just next to the outlet of the Pont de Normandie. This area is known for its elegant old Basin, characterized by its wedged houses with narrow facades covered with slate. In other words, the buildings are very compact, the houses are high and slender and capped with traditionally three-sided dormers. These dormers have faces clad in tiles that protect them from the rain. The chimney stumps, moderately high and imposing, are composed of bricks. The site should include several buildings such as housing buildings, offices, restaurants, shops, outdoor spaces, and the existing buildings which will function as a nursery, library, book store, workshop, etc that need to rehabilitate, restructure and adapt to accommodate the plans. According to the functional program, there will be 4900m2 for the living area, 2000m2 for offices which will be divided into 1000m2 for Coworking type spaces to share and 1000m2 for Spaces workshop style for handwork, 1600m2 for Cultural and sports pole and a minimum of 600m2 for restaurant, coffee shop, food shop and other stores including space for the liberal profession and market space.

The present study focuses on the designing architectural and structural aspects of the mentioned buildings in addition to the detailed cost estimates and insulation aspects of them by presenting accurate calculations, related photos of the site, and modeling in the appropriate software. For the construction in the north, we will have to manage with Honfleur's style and the existing buildings created on the project site.

The aim of this work is to show how beneficial it was participating in an international workshop for the students from different European countries and look at the degree

to which a 1-month workshop can create technical and non-technical outcomes for the international students.

This paper will answer the following research questions:

1) *How did the designing of the buildings implement?*
2) *What was the technical impact of the workshop on the participants?*
3) *What was the non-technical impact of the workshop on the participants?*

https://yandex.com/images/search?text=Honfleur%E2%80%AF&pos=7&img_url=https%3A%2F%2Fs1.1zoom.me%2Fbig3%2F81%2FFrance_Houses_Rivers_Marinas_Evening_Riverboat_537679_6000x3080.jpg&rpt=simage

## Research

### Method

This study was conducted through a subjective evaluation of the technical and non-technical benefits of the workshop which took place in June 2021. Data collected includes site visits, seminars, and tutorials, using professional software like Revit, BIM, Sketchup, and Autocad, lab work, collecting theoretical data, collaboration with experts from academic institutions and professional companies, and the feedback from the students after finishing the workshop. The participants were the students from Norway, France, and Portugal attending a four-week international workshop event in Sustainable Building Engineering in June 2021 at Caen, France.

This workshop event was held in three different sub workshops which were Offshore Renewable Energy and Aquaculture, Sustainable building engineering, and Port Engineering and Maritime works [1]. In each workshop, 3 different groups were working on the real case project and this paper focused on the planning result of one of the groups in the Sustainable building engineering workshop.

The weeks of the workshop embedded core concepts of the way of designing the buildings in a sustainable way and with eco-friendly materials and by focusing on creating buildings with various functions and respecting requirements specification which the students were expected to work within the teams they were in. Such concepts were reflected in how their work should be valued and recognized, and communicated with the project stakeholders, the citizens, and the university.

Existing buildings

Building (a)

Concerning its goal, It was chosen to make a craftsmanship workshop within the center portion since it's the portion with the most noteworthy ceiling and with the biggest openings. Adjacent to this nearby the decision was to make a craftsmanship presentation corridor and a bookstore. Figure 1 is presenting the current structure of the existing building.

Figure 1

In order to have more daylight for the remodel of this building, the construction of higher windows was a good idea. The supplantation of the wooden entryway with a glass entryway was chosen in order to realize a warm separator from the interior. In order to have more space for the bookstore, It was decided to create one wooden floor within the cleared-out square of the building. In addition, the supplantation of the peak divider, which has split, with a shade wall was the next planning idea.

*Figure 2 is showing the designed structure for Building (a).*

Building (b)

For building (b) It was decided to form a nursery with a resting space, toilets counting one PMR, a kitchen, action space, and open air space. Figure 3 is showing the current structure of the second existing building.

Figure 3

For the remodeling of this building, It was determined to broaden the windows in tallness for a more prominent commitment of daylight, to supplant the huge wooden entryway in shade divider with 2 entryways, to realize warm cover from the interior, and to keep the wooden floor to the proper of the building. In addition, The idea was to supplant one peak divider, which has splits, with a shade wall. So, with this adjustment, Figure 4 is presenting the expected model of the second existing building.

Figure 4

Building (c)

For the third building, the decision for its function was to create a library. Previously, this building was 2 terraced houses separated by a cross wall. So the idea was to create an opening in this wall and create two different parts of the library. On the first floor, it was planned to create a mezzanine in addition to the two spaces. The second part of the first floor was destined for the staff with an area for the stock and sanitary.

Figure 5

Concerning the envelope of the building, the preservation of the original aspect was chosen. So we kept the shape and position of the windows. In the same way, it was decided to recreate the wood slab for the first floor and the attic. We just reinforced it with metallic beams at some places.

Figure 6

Building (d)

Building 4 has the same shape as the third existing one and its function will be individual offices.

The existing structure was kept in a way to reduce the overall cost of the project.

Figure 7

The Relaxation Area

For the relaxation area, the idea was to make an unwinding space within the center of existing buildings with a theater, a wellspring, trees, and pedestrian spaces like the thing which is shown in Figure 8.

Figure 8

Offices

For the offices, the idea was to make a modern building in a way to have sufficient space to put all the office ranges. Value creation as in the other forms of coworking spaces occurs based on the collaboration of participants from different technological and functional backgrounds [2]. It was planned to make 2 000 m² of office regions partitioned into two parts: one half of coworking sort spaces to share and the other half of workshop fashion for handwork. Hence, It was decided to make this unused building completely contemporary. We made a shape suitable for the shape of the bundles and well situated to have the more characteristic light conceivable.

It was also planned to have a charming setting with open regions conjointly outside areas. The ground floor will receive the lobby, a gym, and offices. The first will receive offices. The second floor will be the same as the first one. Then, the third floor will be for one part a terrace to enjoy the view and the sun. The other part will receive solar panels to produce energy for the building. For this building, we have to abide by the Labor Code in France in addition to Eurocodes.

Fire Safety

As it was planned, there were two different staircases of two passage units each. There is no dead-end in the building because there are only open areas. Thus, we don't have to abide by the rule saying that we don't have to be further than 10 meters from the staircase. However, we still have to be 40 meters from the staircase to anywhere on the floor. It was assumed that this new building is lower than 8 meters because the only level higher than 8 meters is the rooftop, so it is not clearly a part of the building. So, for fire safety, there is no need to abide by more restrictive regulations. The fire-protection rating for structural elements will be at least 30 minutes. All fire safety equipment will be put in the building like roof openings above each staircase to extract the smoke in case of fire, staircase door with fire-protection rating of 60 minutes, smoke extraction system for areas greater than 300 m², and the rest regulations.

Thermal Insulation

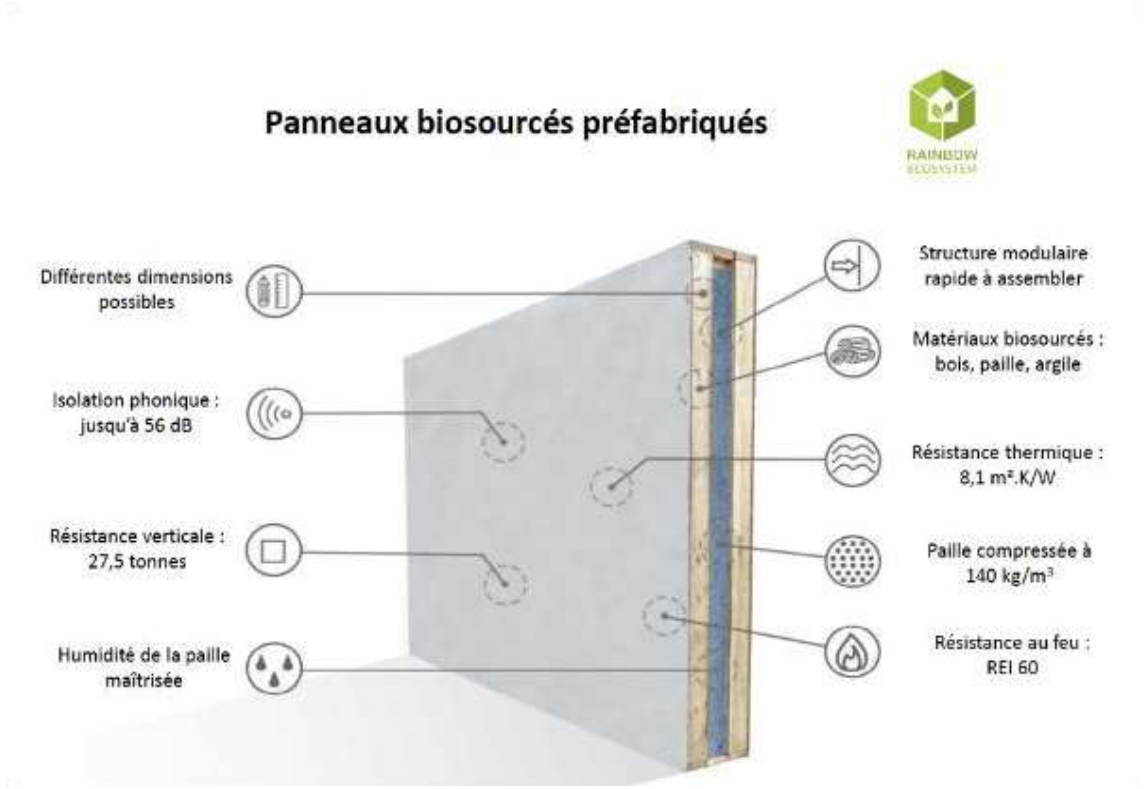



Figure 9

For thermal insulation, it was decided to use the EkoBlocks made by Rainbow. It is a new type of structural wall made of wood for the structural part. The category of this wood is C24. Then there is natural straw in the middle of the component. This material has a vertical load resistance of 27.5 tons. It has a thermal resistance of 8.135 m².K/W. It has sound insulation of 56dB. The fire protection rating is 60 minutes.

For the insulation of the slabs, we will put a layer of cork on each slab (even on slabbing and roof) in a way to insulate from the heat and the sound. It is a natural material with good characteristics of insulation. There is the need to abide by France's existing thermal regulation (RT 2012)[3] and to have the three

requirements corrected (Bbio, Cep, and Tic). The building was analyzed on the software Pleiades. However, we obtained bad results because of the curtain walls localized on the ground floor.The only difference between the housing building and the office building is the curtain walls for the exterior walls. Thus, we based ourselves on the thermal study carried out on residential buildings because we use the same type of materials for exterior walls. As you can see above, the innovative materials are for good thermal insulation and correspond to our need to realize a sustainable building.

We justify a single thermal study because the thermal requirements in offices are the same as for housing buildings. Therefore, the thermal study carried out on residential buildings is the same as the one which could have been carried out on offices. Moreover, it was chosen to have thermal insulating curtain walls with three glasses and air between each layer.

Sound Insulation

For good sound insulation, we will integrate cork on the top of each floor. Above it, as a cover, we will use the carpet for noise absorption. The sound insulation regulation for housing is more restrictive than the regulation for the office. Thus, we modeled the housing building on the software CYPE in a way to analyze the sound insulation of the building.

Housing

Architectural aspect

Figure 10

For housing, it was planned to design 2 separate buildings, one of them has 6 blocks and the other has 5 blocks.
For the shape of these buildings, we are inspired by housing in the city center of Honfleur, in particular buildings in the port. It was done the same way in order to keep the spirit of the city of Honfleur for modern buildings.

**The left building (5 blocks):**

- There are 12 T1, 16 T2, 5 T3 and 12 T4 in this building. (T1, T2, T3 and T4 are different types of the flats)
- There are 5 floors above the ground floor.
- For the first 3 floors we have all 5 blocks but on the 4th floor there are 2 blocks and on the last floor there is only 1 block.
- The building is divided into 3 parts. The 1st and 2nd parts from the left have 2 blocks and the 3rd part has only one block.
- Near each staircase There is the hall and mailboxes on the ground floor.
- In the ground floor there is a shop, a pharmacy, a bakery, a boiler room, a room for cleaning stuff and 8 storage rooms.

Figure 11

**The Right building (6 blocks):**

- There are 8 T1, 14 T2, 10 T3 and 8 T4 in this building.
- There are 5 floors above the ground floor.
- For the first 3 floors we have all 6 blocks but on the 4th floor there are 2 blocks and on the last floor there is only 1 block.
- The building is divided in 3 parts and in each part, there are 2 blocks.
- Near each staircase we have the hall and mailboxes on the ground floor.
- In the ground floor there is a bicycle area, a laundry, common area, a boiler room and 7 storage rooms.
- In the common area There will be a ping pong table, billiard table, sofas, coffee machine and food dispenser.

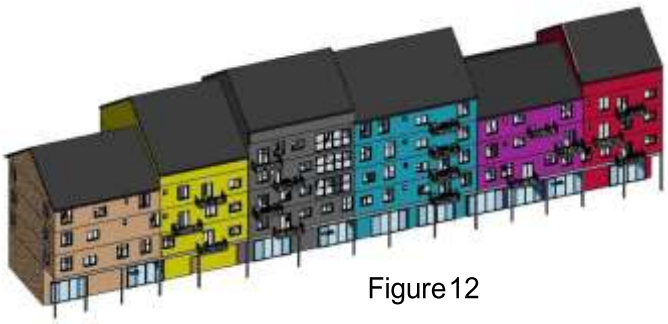


Figure 12

The bicycle area is for 2 buildings' inhabitants and the laundry is open to everyone (not just for inhabitants of the buildings). On the ground floor, there is a covered space to circulate along the outside of the front of the building.

For fire safety, there are some rules to respect according to the type of buildings. Both buildings are in the 3rd family because the last low floor of the living buildings is measured less than 28 meters. Inside the 3rd family, there are also 2 types of buildings (A and B). Both buildings are in the type A group because the buildings have less than 7 floors, each flat is less than 10 meters far from the staircase and the staircase on the ground floor is close enough to the main road.

Fire safety

For the following rules we used the website Sitesécurité.com:

- As our building is in a group of the third family, the fire stability will be one hour [4].

- For the floors except for those built inside the same building: buildings of the third family: one hour [5].
- In the buildings, we have to display local plans for evacuation and instructions to follow in case of a fire emergency. We have to put local plans and instructions on each floor, in staircases, and near emergency exits [6].
- Lifts are not considered as means of escape except for homes for the disabled. Therefore, we need a one-hour fire break for third family A buildings [7].
- In the collective dwellings of the second, third, and fourth families, the stairs connecting the basements and the rest of the building must include at least one half-hour fire-rated door unit, the door of which is fitted with a door closer and opens in the direction of the exit from the basement. These stairs must end, on the ground floor, in a hall or horizontal circulation and must not end in the stairs serving the floors [8].
- To facilitate emergency responses, we need to reserve someplace in front of the buildings where only emergency vehicles are allowed to park.
- Groupings of single-family houses and buildings of great length must be cut at least every forty-five meters by a firewall of half an hour degree for the dwellings of the first family, of one-hour degree for the first family. dwellings of the second family and one hour and a half for those of the third and fourth families [9].
- Except for the facades, the vertical walls of the housing envelope must be: Half-hour fire stop for collective dwellings of the second family and dwellings of the third family;
- The landing door sets serving the dwellings of the collective dwellings of the second family and the dwellings of the third family must be a quarter of an hour flame arrestor [10].
- On the top of the staircase, we need to have a device close normally which will be open when there is a fire to evacuate smoke [11].

Structural aspect

The structure of the building is concrete. This solution was chosen because concrete is the best solution for the sound insulation in collective housing buildings. “It has been reported that the use of crumb rubber derived from waste tires as aggregates in cement based materials helps concrete to attain better ductility [12], enhanced thermal insulation [13] and improved sound insulation properties [14]”. [15]

It was chosen to take the Ekoblock for the insulation of the building, the explanation of the wall is in the thermal insulation on the office building part of this study. We put an Ekoblock on the external wall of the building. The building is composed of 5 floors above the ground floor. The Ekoblocks can’t be structural after 2 levels above the ground floor.

Figure 13

It was chosen to put some columns and beams on the external wall and put the Ekoblocks between the columns. As the manufacturer proposes in the picture above. To avoid a thermal bridge due to the concrete columns, the manufacturer proposes to put an additional layer of insulation to the concrete structure. The structural interior walls will brace the building.

Restaurant/Shops

Architectural aspect

For this part of the project, the objective is to create an attractive space for people, whether tourists or people residing on the peninsula. We wanted to create a friendly space that allows the people to enjoy the view of Honfleur and its typical buildings. So it was decided to mix stores and restaurants, creating terraces to allow people to be on the docks. It was created with only one floor so as not to obscure the view of the other buildings. This also makes it possible to maintain harmony with the existing by integrating a brick facing. Curtain walls complete the building by opening up the space to give more volume and lightness to the whole..

Figure 15

Figure 16

Figure 16 is showing the final designing plan of the entire site which included office buildings, housing buildings, existing buildings, shops, restaurant and market.

## Discussion and Conclusion

This workshop extended permitted the students to put themselves in a proficient circumstance amid a call for tender's phase. It should be appreciated by all the individuals who offered assistance to the students during these 4 weeks and the staff of the district of Honfleur who visited the location. This visit permitted the

participants to inundate themselves within the setting of the venture and to urge them to know the location better.

Throughout the time, the participants had a heterogeneous gathering. Subsequently, everybody was able to contribute to the realization of this extension with his/her diverse encounters.

Approaching an architectural design project through the acoustic study through the structure allows the students to understand how important the stage of preparation and realization is in a project. By putting themselves in the shoes of all the actors they were able to understand the different problems they have to face and it was one of the amazing aspects and benefits of the workshop. In addition, this type of project allowed the participants to better approach collective work. One can indeed assimilate to the cohabitation of the company on a site the fact of managing the various interactions and opinions of each one. This allowed the students to better synthesize the different issues. Moreover, this workshop allowed the participants to meet international students and they could add their ideas to the project.

## References


[1] https://www.esitc-caen.fr/en/international-workshop , accessed on 27.08.2021

[2] Bouncken, R. B., Laudien, S. M., Fredrich, V., & Görmar, L. (2018). Coopetition in coworking-spaces: value creation and appropriation tensions in an entrepreneurial space 1 3 JEL Classification L21 · L23 · M10 · M13 · O31 · O35. *Review of Managerial Science*, *12*, 385–410. https://doi.org/10.1007/s11846-017-0267-7

[3] https://www.climate-laws.org/geographies/france/policies/thermal-regulation-2012-rt-2012 , accessed on 27.08.2021

[4] https://www.sitesecurite.com/contenu/hab/h005.php?id=H5 , accessed on 18.06.2021

[5] https://www.sitesecurite.com/contenu/hab/h006.php?id=H6 , accessed on 18.06.2021

[6] https://www.sitesecurite.com/contenu/hab/h100a104.php?id=top , accessed on 18.06.2021

[7] https://www.sitesecurite.com/contenu/hab/h097.php?id=H97 , accessed on 18.06.2021

[8] https://www.sitesecurite.com/contenu/hab/h024.php?id=H24 , accessed on 18.06.2021

[9] https://www.sitesecurite.com/contenu/hab/h007.php?id=H7 , accessed on 18.06.2021

[10] https://www.sitesecurite.com/contenu/hab/h008a009.php?id=top , accessed on 18.06.2021

[11] https://www.sitesecurite.com/contenu/hab/h025a029.php?id=top , accessed on 18.06.2021

[12] Pacheco-Torgal, F., Ding, Y., & Jalali, S. (2012). Properties and durability of concrete containing polymeric wastes (tyre rubber and polyethylene terephthalate bottles): an overview. *Construction and Building Materials*, *30*, 714–724. https://doi.org/10.1016/J.CONBUILDMAT.2011.11.047

[13] *Mechanical behaviour and thermal conductivity of mortars containing waste rubber particles*. (n.d.). Retrieved August 27, 2021, from https://www.infona.pl/resource/bwmeta1.element.elsevier-c20f3055-306f-3e72-a76b-7cc50d24b117

[14] Mohammed, B. S., Hossain, K. M. A., Swee, J. T. E., Wong, G., & Abdullahi, M. (2012). Properties of crumb rubber hollow concrete block. *Journal of Cleaner Production*, *1*(23), 57–67. https://doi.org/10.1016/J.JCLEPRO.2011.10.035

[15] Zhang, B., & Poon, C. S. (2018). Sound insulation properties of rubberized lightweight aggregate concrete. *Journal of Cleaner Production*, *172*, 3176–3185. https://doi.org/10.1016/J.JCLEPRO.2017.11.044

# Summary on blockchain research in the leading global academic institutions

**Jan Veuger**

President Academic Board FIBREE
Saxion University of Applied Sciences, The Netherlands
j.veuger@saxion.nl

## Abstract

This article based on a survey gives an idea of the topics around Blockchain and Real Estate that the academics involved at FIBREE see for the coming years. In addition, a picture is given of these involved Most active universities en companies in research on Blockchain en real estate, PhD research on Blockchain and real estate, topics, research in countries, keywords in research, leading authors of Blockchain and real estate studies, research focus in the coming years and topics on the FIBREE Academic Board in the coming years. FIBREE's Academic Board (AB) was established in 2019 with the aim of bringing together real estate professionals and blockchain specialists from around the world to exchange academic expertise. The AB is aware of the current state of academic level on blockchain technology, which can be further expanded in the coming years.

Keywords: FIBREE, blockchain, real estate, academia.

## Introduction

The mission of FIBREE's AB is to help create a realistic academic expectation that the real estate market will step by step discover and exploit the true potential of blockchain technology. By bringing together the expertise of academics (professors, students and the field) pioneers in this field and sharing already acquired knowledge and insights, FIBREE's AB aims to make a significant contribution to the adoption and implementation of this technology in the academic and real estate market in the coming years. In addition to an active contribution within FIBREE and the Industry Reports which give an indication of the development of Blockchain and real estate from FIBREE's research worldwide. This article provides an overview and analysis of current and relevant scientific insights from academic partners within FIBREE.

## Methodology worldwide

We asked every one of the Regionals Chairs (RC) and active community-members who are academically engaged in Blockchain and Real Estate research to answer the following questions:

(1) what blockchain and real estate research do you see and is relevant from your point of view,
(2) what research output on blockchain and real estate have you developed and
(3) who are the experts with what specific expertise on Blockchain and real estate at the academic level that you see?

The research looked for the combination of blockchain and real estate in the output of the different stakeholders for this research. An overview of the surveyed academic experts can be found in the table below. The data collection started in mid-March-May 2021. In May - April 2021, the analyses were carried out centrally and coordinated, with some checks at the RC.

*Table 1: Academic experts. Response: In total, 28 experts were asked to complete the survey, 15 of whom did so, all of whom were useful for the study. The total response rate is therefore 54% and can be generalised. Jan Veuger did not participate in the survey as he is the author of the article and the survey.*

| Name | Organization | Region | Country | FIBREE role / Contact of |
|---|---|---|---|---|
| **Prof. Dr. Michael Truebestein, MRICS,** | Lucerne University of Applied Sciences and Arts | Luzern | Switzerland | Academic Board |
| **Dr. Balkiz Yapicioglu** | Arkin University of Creative Arts and Design | Arkin | Cyprus | Academic Board |
| **Dr. Rebecca Leshinsky** | RMIT University | Melbourne | Australia | Academic Board |
| **Alexander Appelmans MSc** | KU Leuven | Leuven | Belgium | Academic Board |
| **Andrew Baum** | Saïd Business School University of Oxford | Oxford | UK | Academic Board |
| **Dr. Eleni Papadonikolaki** | The Bartlett School of Construction and Project Management | London | UK | Academic Board |
| **Alan McNamara** | PhD Candidate in Digital Construction | Sydney | Australia | Academic Board |
| **Bill Stanford** | licensed Real Estate instructor for New York | New York | USA | Regional Chair FIBREE |
| **Marc Driessen** | lecturer for Real Estate Economics at NBS Northern Businnes School University for Applied Sciences in Hamburg | Hamburg | Germany | Regional Chair FIBREE |
| **Jeremy Barnett** | Honorary Professor at the Bartlett, UCL (BREIT) | London | UK | Regional Chair FIBREE |
| **Yingli Wang** | Reader in Logistics and Operations Management at Cardiff University | Cardiff | UK | Kevin O' Grady |

| | | | | |
|---|---|---|---|---|
| **Achim Jedelsky** | Visiting lecturer at HTW Berlin | Berlin | Germany | FIBREE Executive Board |
| **Andrea Romaoli** | professor for Master Degree in Science of Law in IBET UNIVERSITY | Valetta | Malta | Regional Chair FIBREE |
| **Prof. Dr.-Ing. Katarina Adam** | HTW Berlin | Berlin | Germany | Achim Jedelsky / Jo Bronckers |
| **Lee Bratcher** | Professor at DBU researching blockchain applications in social science at The University of Texas | Dallas | USA | Regional Chair FIBREE |
| **Claus Skaaning** | PhD at Department of Computer Science, Aalborg University | Aalborg | Denmark | Regional Chair FIBREE |
| **Jose Reis Santos** | Professor at ISTEC | Lisbon | Portugal | Regional Chair FIBREE |
| **Anetta Proskurovska** | PHD Researcher (Industrial Fellowship) in economic geography at Luxembourg Institute of Socio-Economic Research (LISER) | Luxembourg | Luxembourg | John Dean Markunas / Jo Bronckers |
| **Jacob Sagi** | Professor at UNC Kenan-Flagler Business School | Chapel Hill | USA | Jo Bronckers |
| **Federico Garaventa** | Former Professor at the University of Genova, Faculty of Architetcure | Genova | Italy | Regional Chair FIBREE |
| **Knut Hinkelmann** | Professor at FHNW University of Applied Sciences and Arts Northwestern Switzerland | Basel | Switzerland | Achim Jedelsky / Jo Bronckers |
| **Galia Kondova** | Senior Lecturer and Researcher, University of Applied Sciences and Arts Northwestern Switzerland | Basel | Switzerland | Achim Jedelsky / Jo Bronckers |
| **Fabian Suess** | Visiting lecturer for Scrum, Design Thinking & Lean Startup in Facility Management & in the Center for Digital Transformation at Baden-Wuerttemberg Cooperative State University (DHBW) Stuttgart | Stuttgart | Germany | Regional Chair FIBREE |
| **Anniina Saari** | Doctoral candidate, Aalto University School of Engineering | Aalto | Finland | Jo Bronckers |
| **Dirk Brounen** | Professor of Real Estate at Tilburg University (TIAS Vastgoedlab) | Tilburg | Netherlands | Jo Bronckers |
| **prof Cristina Poncibo'** | Professor in International Law and compare law system | Turin | Italy | Alex Dell Orto |
| **Emanuele Ricciardi** | Master to department of Develop and Landscape - Politecnico milano | Milan | Italy | Regional Chair FIBREE |
| **Dr. Ing. Jan Veuger MRE FRICS** | Saxion University of Applied Sciences (Blockchain Institute) | Deventer | Netherlands | Academic Board |

**Most active universities en companies in research on Blockchain en real estate**

To the question ‘To your knowledge, which universities or companies are most active in research on Blockchain and real estate?’

The following picture emerges in terms of universities and the following are mentioned: England (Cardiff University, UCL, Oxford Said Business School, University of British Columbia), the Netherlands (Saxion UAS and University of Maastricht) Germany (Frankfurt School of Finance and Management), Italy (Politecnico di Milano), Belgium (KU Leuven), HongKong (HKU) and Switzerland (ETH). We can therefore conclude that England in particular is leading and the Netherlands according to this research.

Looking at companies, there are only a limited number (4): DigiShares, Cronos Group, IBM and Dutch Blockchain Coalition.

**PhD research on Blockchain and real estate**

In the survey, the question 2. ‘Do you know where PhD research on Blockchain and real estate takes place and if so, can you indicate which ones you are aware of?’ and it produced the following result.

In general, PhD research in the area of real estate and blockchain seems to be limited and people indicate that they are not really aware of it (yet). Looking at the universities where the PhDs take place, the names mentioned are Technischen Universität Kosice, Liverpool Business School, Aalto University, Finland, University of Turin and KU Leuven. In addition, some specific names (3) of PhD researches are mentioned.

When we look at the level of research in the field of Blockchain and real estate, we see that it is mainly on an academic level (70%) and to a lesser extent applied bachelor level (30%).

**Topics**

The experts were asked to answer ‘Can you indicate which topics you mainly see in research on blockchain and real estate (Manage and Operate, Invest, Work, Market, Plan & Build, Transactions & Escrow)’ and we see the following.

Transaction & Escrow Services (30%) and Invest & Finance (30%) score the highest of all topics, followed by Smart City Solutions (20%), Market & Platforms (10%) and Research & Valuate (10%). This shows that the financial side of real estate in particular receives the attention of the topics.

It is striking that Research & Valuate receives the least attention while you might expect it to in view of the two high-scoring topics.

**Research in countries**

Response to the question ‘Can you tell us in which countries research is mainly taking place in the area of Blockchain and real estate? gives five front runners.

The Netherland (25%), UK (20%), Germany (10%), Sweden (10%) en US (10%). All other countries like Canada, Estonia, Belgium, Switzerland and Hong Kong all score 5%.

**Keywords in research**

**Leading authors of Blockchain and real estate studies**

The answer to the question of ‘Who is leading’ is limited.

Besides the fact that some respond by saying they don't know and/or don't think it's relevant, there is also a comment that it depends on which subcategory you would like to look at. Names that are mentioned once are Victoria Lemieux. Andrew Baum, Sjef van Erp, Alexander Savelyedv, Jaques Vos, Nasarre-Aznarm Tjon Tjin Tai and Jan Veuger (three times).

**Research focus in the coming years**

The respondents indicated - in no particular order - that the following focus points should be applied:

- Focus on the long-term applications.
- New Business Models with decentralized applications based on Blockchain technology
- Funding of RE development project
- Investing
- Supply Chain
- Smart Contracts
- sustainability, business usecases and scale up applications, tokenization
- EU and a comparative study about blockchain and real estate law(s) is needed and much welcomed

Overall, good quality research is needed in all realms. Thus far the academic blockchain research has concentrated on the technical aspects. In the short term, they believe very good quality case studies of actual blockchain real estate applications (even if on closed/private blockchains) - successful or unsuccessful -

would benefit both the academia and the practitioners. The research should answer why blockchain has been applied and how it was applied. The scope of the case studies should be very thorough and concentrate also on the business benefits that were received (if any) when compared to traditional centralized solutions. They believe this kind of case study examining actual live cases would help the general public to understand blockchain better, too. Also, it would help in forming best practices etc.

**Topics on the FIBREE Academic Board in the coming years**

Respondents were also asked the question What topics should be on the FIBREE Academic Board's agenda in the coming years in particular? The respondents were also asked the question What topics should be on the FIBREE Academic Board's agenda in the coming years in particular? These topics will be on the agenda in the coming meetings to set the agenda for the coming years.

The topics are:

- Creating a FIBREE blockchain & real estate certification program.
- Standardization, communication, forming strong networks.
- Interaction with other technologies.
- Monitoring the development of real, working business solutions and building the brigde between them and Real Estate players.
- Digital Twins for machine lending.
- NFT and Decentralized Finance (Defi).

**References**

Veuger, J. (2020), Sole Editor *Blockchain Technology and Applications II*. Peer reviewed. Nova Science Publishers Inc. New York USA. ISBN978-1-53617-931-6. https://novapublishers.com/shop/blockchain-technology-and-applications-ii/

Veuger, J. (2020a), *A Database Exploring Blockchain and Real Estate* in *Disruptive Technology, Legal Innovation, and the Future of Real Estate (pp. 3-25).* https://www.springer.com/gp/book/9783030523862#

Veuger, J. (2019), Sole Editor *Blockchain Technology and Applications*. Peer reviewed (262 p.) Nova Science Publishers Inc. New York USA. May 2019. ISBN 978-1-53615-288-3. https://novapublishers.com/shop/blockchain-technology-and-applications/

# Real Estate as a service

**Jan Veuger**

Saxion University of Applied Sciences, The Netherlands
j.veuger@saxion.nl

**Joris Winters**

Arcadis Nederland B.V.

**Herman J. Kok**

MARK Capital Management Ltd

**Paul Wessels**

Chairman RICS working group Research & Innovation

## Abstract

When looking at the expertise in the RICS Research Group and Development in The Netherlands and a holistic approach to the possible relevant developments in the field of the built environment - whether or not influenced by COVID-19 - an integral approach is of great importance for the raison d'être of real estate. A long- term approach to real estate will increasingly play a role in which the boundaries between construction and management of the built environment are blurred, but where there is still a long way to go to bring service to a higher level. We therefore look from three different perspectives by experts from this group at (1) Corona crisi accelerates the green blue revolution in real estate (2) Perspectives of Urban Mixed Use in Post-Corona Central Urban Areas and (3) cooperation in new coalitions.

Keywords: flexibility, service, urban locations, digitization, other infrastructure and new alliances.

## Introduction

As a globally recognised professional body, everything the Royal Institution of Chartered Surveyors (RICS) do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

With over 134,000 highly qualified trainees and professionals, and offices in every significant financial market, we are ideally placed to influence policy and embed our standards within local marketplaces in order to protect consumers and businesses. In doing so, we can innovate and progress the development of spaces and places so they are fit for future generations, in addition to the challenges faced in the present.

Surveyors keep traffic flowing, water running and people moving. They shape our roads, bridges and tunnels, our skyscrapers, stations and stadiums. They work in mines and in fields, on cliffs and on beaches. They value the houses we live in and the places we work in. They create safer homes and happier communities. And they're busy shaping our future too: helping to regenerate deprived areas and planning smart cities connected by the Internet of Things, while pioneering safer, more sustainable and more environmentally friendly building methods.

Surveyors work closely with a wide range of people: architects and engineers, bankers and ecologists, town planners and property developers. And they use the latest technologies: flying drones to map land and measure buildings, creating virtual reality models of buildings, and using Big Data to tackle global issues like climate change, migration and urbanisation. There are more than 100 varied career roles across the surveying profession in three main sectors: construction and infrastructure; property; and land.

The Research and Development Group of the Royal Institution of Chartered Surveyors (RICS) In the Netherlands, the main focus is on developments affecting the real estate market. From this working group regular publication (Kok et al. 2020) is provided whether or not in combination with webinars, the two most recent of which are 'Webinar Real Estate as a Service' (October 22th 2020) and 'Webinar Samenwerking als medicijn tegen een verstolde huizenmarkt' (Webinar Collaboration as a medicine against a clogged up housing market) (December 9th 2020).

**Real Estate as a Service**

When looking at the expertise in the RICS Research Group and Development in The Netherlands (figure 1) and a holistic approach to the possible relevant developments in the field of the built environment - whether or not influenced by COVID-19 - an integral approach is of great importance for the raison d'être of real estate. A long-term approach to real estate will increasingly play a role in which the boundaries between construction and management of the built environment are blurred, but where there is still a long way to go to bring service to a higher level. We therefore look from three different perspectives by experts from this group at (1) Corona crisi accelerates the green blue revolution in real estate (2) Perspectives of Urban Mixed Use in Post-Corona Central Urban Areas and (3) cooperation in new coalitions.

*Table 1: Expertise in the Research Group and Development RICS Netherlands*

| Name | Role | Organization |
|---|---|---|
| Robert Dackus MIM MRICS | Head Reserach and Concepts | 3W Real Estate |
| Kay Deana MRE MRICS | Manager Portfolio Strategy and Research | Heimstaden |
| Dr. Herman Kok MRE MRICS | Vice President, Head of Research | MARK Capital Management Ltd |
| Dr. Ir. Gert Joost Peek MRICS | Owner and professor Applied Sciences | SPOTON and Rotterdam University of Applied Sciences |
| Paul Wessels MSc MRICS | Chiarman Working Group Research and Innovation | RICS |
| Joris Winters MSc MRICS | Sector Leader Property and Investment | Arcadis The Netherlands BV |
| Machiel Wolters MSc MRICS | Senior Director | CBRE The Netgerlands |
| Dr. Ing. Jan Veuger MRE FRICS | Professor Blockchain and Real Estate | Saxion University of Applied Sciences. |

**Corona crisis accelerators the green blue revolution in Real Estate (by Paul Wessels)**

The corona crisis is further accelerating awareness of how much our built environment contributes to well-being and health. It will also accelerate building and area standards that are evidence-based and supported by peer-reviewed science.

The American futurist Rex Miller recently put it this way: 'We've all been caught in a convulsion of historic dimensions. We didn't ask for it, see it coming, or know what to do when it arrived. We will collectively be dealing with months and perhaps years of collateral damage to our economy, employee mental health and the psyche of our nation.'[62]

The rise in health care costs is certainly not a new phenomenon. For example, look at practice in the Netherlands: Between 1972 and 2018, health care expenditure in the Netherlands rose from 6 billion to 100 billion euros. The National Institute for Public Health and the Environment (RIVM) estimates that the costs will rise to € 291 billion in 2060. The vast majority (€ 96 billion) will go to hospital care. Expenditure on care for the disabled, elderly care and mental health care will then probably amount to € 30 billion.[63] Based on an average annual real growth of the economy of 1.7 percent up to 2060, we see that health care expenditure as a percentage of the gross domestic product will increase from 12.7 to 19.6 percent between 2015

[62] Rex Miller, Strategy in Rebuilding: Principles to Build Post Traumatic Growth (2020)

[63] Outlook for health care expenditure 2015-2060, Quantitative preliminary research commissioned by the Scientific Council for Government Policy, RIVM, page 3.

and 2060. This would mean that health care expenditure per capita would increase from more than € 5,100 to almost € 15,800: a tripling.[64]

The same trend is present in all Western countries. In the United States, the situation is even more serious: If the current rate keeps up, by 2050 almost 40% of GDP will be required to cover health costs. [65]

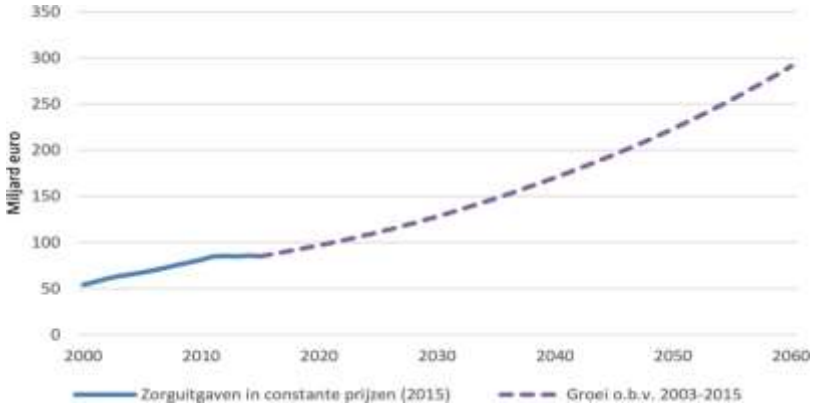



*Figure 2: Healthcare expenditure Netherlands, projection based on diagnosis-specific long-term growth. Source: RIVM.*

Corona accelerates the health crisis

The corona crisis is exacerbating the situation. A Commonwealth Fund study concluded in the summer of 2020 that a third of adults in the US had suffered from a powerful cocktail of stress, anxiety and sadness since the start of the pandemic. The rapid spread of COVID-19, the tidal wave of information and misinformation, along with the feeling of isolation from physical distancing and quarantine measures, demands a high price. And it will not be over by the beginning of 2021.

Here too the US scores higher than many other countries, especially in northwestern Europe. For example, the Netherlands scored low in that study compared to other Western countries, with only 14% of the population reporting similar complaints.[66] But for all countries, the COVID-19 trauma is putting pressure on a population already dealing with chronic health issues and thus the accumulating effect on mental health. The main cause is stress, a factor that multiplied significantly in 2020. It is estimated that in the US alone, 90 million people in this country are currently experiencing Level 1 or 2 trauma as a result of the pandemic. '[67]

---

[64] Outlook for health care expenditure 2015-2060 (2020), Quantitative preliminary research commissioned by the Scientific Council for Government Policy, RIVM, page 11.

[65] Rex Miller, Phillip Williams, Michael O'Neill, Michael O'Neill (2018), The Healthy Workplace Nudge How Healthy People, Culture, and Buildings Lead to High Performance, page 22.

[66] https://www.commonwealthfund.org/publications/ issue-briefs / 2020 / aug / americans-mental-health-and-economic-consequences-COVID19

[67] Rex Miller, Strategy in Rebuilding: Principles to Build Post Traumatic Growth (2020)

## Re-humanizing the workplace

A person's mental health is uncertain: it can be influenced - for better or worse - by work and social conditions, environmental factors, lifestyle and health behavior. From a business perspective, mental health care is often viewed as something outside of employers' remit - and seen as a 'nice to have', rather than an essential element. But as the evidence mounts, CEOs realize that investing in the mental health and resilience of their employees is more than altruistic; it has a direct impact on productivity and profitability.

When organizations focus on employee health, it is now more important than ever to pay attention to people. Right now, we have the opportunity to be there for other people in a way that may not have seemed important prior to the pandemic. Check in with your colleagues with a simple 'Are you okay?' is a good place to start.

The environments we create to facilitate work become proxies of how well we work and live together. Re-humanizing the workplace is the first bridgehead to avert the threat of runaway health costs. Knowing that more than 80% of a company's exposure is the cost of its people and that people spend more than 90% of their lives in buildings, what does it take to turn every building into a platform that supports the health and well-being of its residents?

David Radcliffe, vice president of real estate and workplace services for Google, put it this way: ‘Are we squeezing pennies to reduce building cost and losing dollars of engagement?’[68]

One of the most difficult things for leaders during periods of recovery from major disasters is to adapt to the reality that this is not an event, but a process. We are entering the stage of disillusionment and must immediately prepare for reconstruction. The pandemic exposed many structural deficiencies in the health system, the inequalities in our economy, the lack of clear governance, an unprepared and unequipped education system, a lack of emergency preparedness, as well as the health and well-being of our employees.[69]

## The rise of the chief wellness officer

Before COVID19, companies were already on an unsustainable path in terms of health and health costs. For example, one of the best-known human wellness researchers, Dr. Michael Roizen, wellness officer of the Cleveland Clinic, argues that business leaders should become their own chief wellness officers; they cannot delegate supervision of this to HR departments alone. Companies have a unique opportunity to reverse this trend because of the millions of people they directly affect and then indirectly affect when employees return home. Dr. Roizen summarizes it

[68] Rex Miller, Phillip Williams, Michael O'Neill, Michael O′Neill (2018), The Healthy Workplace Nudge How Healthy People, Culture, and Buildings Lead to High Performance,

[69] Rex Miller, Strategy in Rebuilding: Principles to Build Post Traumatic Growth (2020)

in one mission: “Our task is to give healthy employees the energy to work. That's the only way the company can survive.[70]

This has a major impact on the way we judge the built environment. In addition to 'green' certification, 'blue' certification is becoming increasingly important. A certificate for green buildings has evolved from a 'nice-to-have' to a 'baseline must-have' among many progressive tenants, landlords and investors. The implementation, validation and communication of some concept of Healthy Buildings is expected to become an even more important differentiator for advanced companies in the future.

Buildings and portfolios are compared on these aspects and this has dramatic economic consequences. An important reason for this is that many of the 'clients' of these buildings are institutional investors, who typically spend 5-10 percent of their portfolios on real estate through direct investment or real estate investment funds. Many investors have also expressed their preference for green buildings in recent years. The theme of health has now been added to this.

Test, verify and certify

One of the main criticisms of green building certification systems is that they largely represent the design and performance of a building at any given time. Does the BREEAM certification of an office from 2010 really tell us anything about the performance of that building today, a decade later? The answer is largely no. Fortunately, just as there has been a movement in education towards 'lifelong learning', there is an outgrowth of buildings as we try to move from static assessments to dynamic assessments, where building performance is continuously measured and verified.[71] In short, this comes down to the continuous testing, verification and certification of buildings and portfolios when it comes to health and well-being.

This is what a good healthy building certification protocol looks like according to Harvard researchers Joseph G. Allen John D. Macomber (2020): Evidence based and backed by peer-reviewed science. Is flexible and can include evolving research and new technological advances. Is standardized, consistently defined and verifiable. Is cost effective (and with a cost-benefit analysis that includes human health and performance). Is not only defined at one point in time. Is managed and verified with on-site testing by experts trained in the anticipation, evaluation, management and control of hazards. Enables performance verification, including monitoring of health performance indicators such as real-time indicators of the quality of the indoor environment in spaces that are representative of where people spend their time. Has been developed in close collaboration with end users and building health experts (e.g. engineers, health scientists and medical professionals). Is recognized by the market and investors in providing commercial value.

[70] Rex Miller, Strategy in Rebuilding: Principles to Build Post Traumatic Growth (2020)

[71] Joseph G. Allen John D. Macomber (2020), Healthy Buildings, How Indoor Spaces Drive Performance and Productivity, page 148

Encourages shared value between stakeholders (e.g. investors, owners and tenants).[72] It is not without reason that we see the rise of health standards such as WELL, Fitwell and others. And existing 'green' standards such as BREEAM and LEED are also being added with new health characteristics.

Science has known for a long time, but accelerated by the corona crisis, the realization breaks through how much our built environment affects our well-being and our health. The breakthrough from green to blue buildings, and the transparency in information required for this, is the biggest revolution in real estate in living memory.

**Perspectives of Urban Mixed Use in Post-Corona Central Urban Areas (by HERMAN KOK)**

While Covid-19 is unlikely to stope the ongoing urbanisation, it is likely to have a substantial influence on the built environment. Preference for living, working, consuming, and socialising are changing because of Covid-19 related restrictions. Part of these changes will be structural, affecting the demand parameters for real estate in different asset classes. A good share of all retail, office, and residential is likely to be improved for health and space quality reasons, ranging from a limited adjustment to a full repurposing or redevelopment. Mixed use real estate in central areas of dynamic cities may be in an advantageous position, as mixed use offers the opportunity to combine functions and shift between them. Mixed use areas also tend to reduce mobility, especially car mobility and can result in shorter commuting distances. Mixed use areas also contribute to the liveability of urban areas as there is a greater variety of use and negative impacts of deserted office areas and bedroom communities can be prevented.

Urbanisation to continue

The world is going through an unprecedented wave of urbanisation. More than half of the world population lives in cities, a share that is expected to grow to two-thirds by 2050. Urbanisation rates also continue to increase in Europe. Large cities function as cradle for ideas, innovations, and relations. For people moving to the city, enrolling in higher education, and starting their career are key motives. And people tend to find partners and initiate household formation in the large cities. Large cities and their agglomerations in Europe have been enjoying higher rates of economic growth and stronger demographics than the country’s average, resulting in larger gap between large cities on the one hand and rural and peripheral areas on the other.

In Europe, many capital cities and large secondary cities were hubs of economic growth outperforming the country’s national average thanks to diverse economies and high degree of diversity in the urban population. Many central urban areas have beein undergoing massive reviatlisations since the 1980s. Urban planning policies shifted from a doctrine of separating functions to a model of mixing functions.

[72] Joseph G. Allen John D. Macomber (2020), Healthy Buildings, How Indoor Spaces Drive Performance and Productivity, Page 173,174

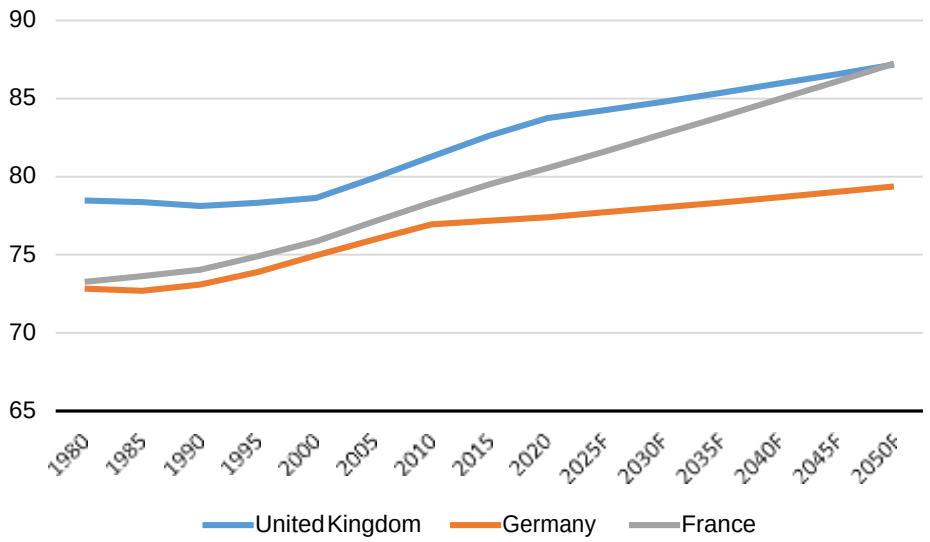



*Figure 3: Urbanisation rate 1980 – forecast 2050. Source: Oxford Economics, 2020.*

Urban planner Jane Jacobs favoured already a mixed-use urban development model in the 1960s, based on mixing residential with workplaces in a quality walkable public space setting. This with services, retail, and food & beverages embedded in the area to serve the needs of the neighbourhood. The appeal of mixed use is strong in Europe's large cities partly because of the urban patterns grown historically, and cities experience an ongoing economic transition towards the services and experience economy.

Among all age groups, expectations are growing for dense, vibrant, mixed use urban locations that enable a 'live work play' lifestyle. These demands are especially high in inner cities that have become safer, with improved schools and hospitals, access to green space and a high standard of public services and infrastructure.

Europe's cities are in an advantageous position, as their compact city centres, established networks of public transport, and dense clusters of infrastructure and institutions mean there is experience withy and a strong starting point for creating and managing mixed-use environments.

Urban innovation has been a strong driver for mixed use environments. Technological advances were often thought to reduce the value of agglomeration effects and the prospects of large cities. However, digital technologies only increased the value of clustering, proximity, and the mixture of functions. Combining uses and systems in mixed-use locations serves the purposes of human interaction, production, and consumption in the new economy. This in a context where boundaries between work, leisure, social life and family life are becoming increasingly hybrid. Technological innovation helps to reduce the impacts of noise and air pollution, reuse and recycle assets and repurpose facilities for multiple uses.

However, high land prices and development cost, combined with restrictive urban planning, often resulted in a reduction of sqm space per capita for living spaces, workplaces, and public space. In some cases, the result was a too dense urban environment with a modest quality public space. One of the assumptions was that

people would spend more time in public places such as restaurants, café's and fitness clubs – so called 'third places' – and would therefore need less private space for a certain quality of life.

### The impact of Covid-19

Though Covid-19 has affected cities dramatically, Covid-19 is unlikely to reverse the continuing urbanisation but will change the way cities are being organised. Besides the strong negative impact on the economy, one of the main consequences of Covid-19 is an acceleration of ongoing mega-trends affecting society and urban development. These include a growing importance of the circular economy, a rapidly progressing digitalisation, an increased focus on health and wellbeing, and a stronger need for inclusion. Despite the phenomenal growth of cities, cities tended also to experience major problems. Widening income and wealth gaps within the city as well as between the large cities and the rest of the country are an increasing source of polarisation and political tension. High land and real estate prices put increasing pressure on the quality of developed buildings and public space, with the amount of available space per person, decreasing substantially over the last decades with smaller dwellings, more crowded offices, and less public space as outcome. Covid-19 emphasized these problems: the larger these problems in cities, the more these cities were impacted by Covid-19 and related lockdown measures.

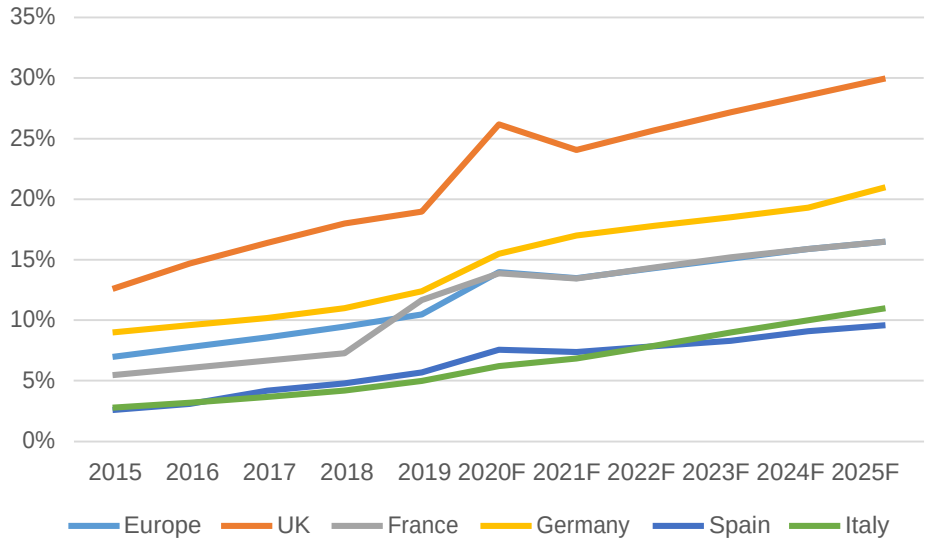



*Figure 4: Online sales as % of total retail sales. Source: Mintel, August 2020*

Covid-19 has a massive impact on almost all aspects of consumer behaviour, which in its turn will impact the way consumers use real estate and function in the city. It affects the way we shop, the way we socialise, the way we work, the way we live, and the way we move. Many of these changes are there to stay. For instance, the accelerated growth of online sales in the retail trade and the increased possibilities to work from home are there to stay. Also, people in the city realise that a dwelling is more than just a place to sleep. Our home is our Castle, a home that should provide space to work and to socialise, should have some outdoor space like a garden or balcony, and should be designed in such a way to prevent nuisance between neighbours.

Retail real estate, both highstreet properties and shopping centres, are strongly affected by Covid-19, and many of these are expected to undergo functional changes. The increase of online shopping, a structural phenomenon in the last 10 years, accelerated substantially because of Covid-19. While physical stores were closed during lockdown periods, overall retail sales hardly declined. Online sales volumes increased while physical sales decreased. Also, not being able to go to restaurants or to the workplace, sectors like grocery, do-it-yourself and home sports and entertainment traded very well, while sectors like fashion and shoes & leather were suffering. Covid-19 is to accelerate the process of repurposing of retail space. For many retail locations to stay relevant, downsizing, integrating additional functions in the area, and repurposing surplus space into another use like services, workplaces, or residential are essential.

The lockdown is also changing the view on the use of office space. The longer the lockdown periods too, the more one realised how to work from distance and how to upkeep productivity. While offices will continue to be the heart of organisations, 93% of corporate decision makers expects working from home and remote working to increase. Pre-Covid, this was only 31%. This will impact the office stock dramatically, with decline in demand for space, but an increase in demand for quality. Also, smaller, and well managed core cities like Amsterdam and Stockholm seem to be in an advantageous position compared to the largest core cities such as London and Paris. Also, business clusters away from the main CBD might be preferred. For investors and developers this implies that there will be a growing need for upgrading and reformatting office buildings in line with post-Covid-demand, as well as a further increasing need for repurposing office premises into other uses, such as student housing or other forms residential.

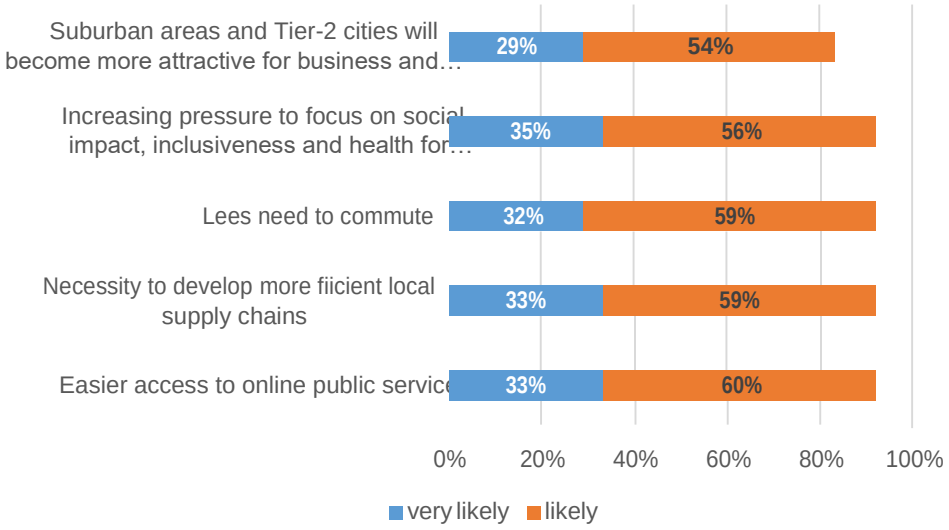



*Figure 5: Main changes initiated or accelerated by Covid-19. Source: ULI & EY Ernst & Young (2020)*

Residential real estate will be affected as well. Although short term issues in the aftermath of Covid-19 such as a decline in rent collection rates and an increase in vacancy were almost not an issue in the residential market and affected mainly short-term rental and expat segments in the market, there will be long term complications. Though a re-emerging phase of suburbanisation is unlikely to

happen, as the city remains the place for idea formation, career growth, and networking, consumers will look to places to live differently. Outdoor space, workspace in the dwelling, air circulation quality, and sound isolation will become more important.

Research conducted by JLL in Summer 2020 showed how priorities have changed in the aftermath of work. Feeling that remote working could become the new reality, one was prepared to accept a longer distance to the office, as daily commuting could become something of the past.

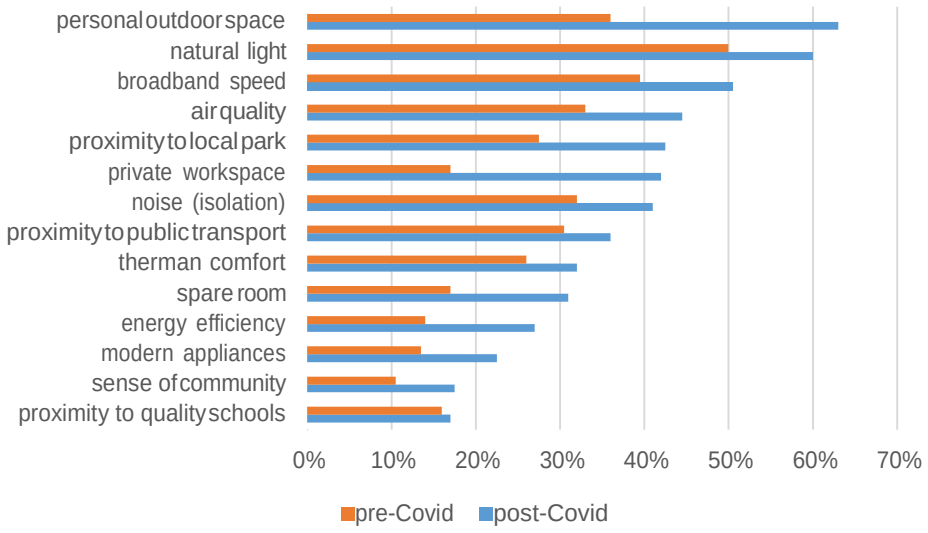



*Figure 6: Home location priorities. Source: JLL (2020)*

Striking was the shift in priorities when it came to criteria the dwelling searched for had to fulfil. Reflecting the concerns for health and being able to work from home, personal outdoor space, natural light, fast broadband, and private workspace are among the key criteria the dwelling had to fulfil, and all experienced a substantial increase in the aftermath of Covid-19. It shows that differentiation in the residential market is likely to become more related to health concerns and ability to facilitate working from home. Space parameters and implementation of technology are key to improve the housing stock in the direction of post-Covid needs. For investors, this implies major long-term tasks to upgrade and adapt their housing stock.

Besides re-arrangement of space, technology plays an essential role in upgrading the real estate stock. The fall-out of Covid-19 has been an important accelerator for further integration of technology into real estate. Technology contributes to more healthy, efficient, and comfortable buildings. Examples of Covid-19 related implementations are quality of air circulation, automatic doors, touch free elevators and touch-free toilets and taps. And infrastructure supporting the possibilities to work from home, such as fast broadband will make dwellings more attractive for those who have a long-term prospect of full or partial remote working. This doesn't only include cable connections in the street, but the way the building is connected to and integrated with the network in particular.

## Conclusion: prospects for urban mixed use

Large cities remain hubs of wealth, growth, and innovation. However, mixed-use real estate in central urban areas will have to be adapted to the post-Covid-19 period. Finding a new balance between urban clustering on the one hand and personal space on the other will be essential. This will require a higher degree of flexibility, a further shift to the service aspect of real estate, and an advanced integration of technology into real estate. A mutual task for investors, developers, and urban governments to be fulfilled for which cooperation between the stakeholders will be much needed.

Mixed-use environments are at their most efficient and most effective when they leverage a diversity of uses and users to create a balanced, dynamic, and integrated urban quarter. Urban mixed-use real estate has the potential to combine the needs of users in terms of health and wellbeing with the preferences of proximity of all functions, in an attractive walkable setting. This implies that both the physical construction, including infrastructure, systems, and the mix and partitioning of uses, and the public spaces both outdoor and indoor, create the kind sustainable and attractive places that provide a quality environment for people to live, work, and play, and a good return on capital and human investment. This placemaking happens when we can create or embrace mixed-use neighbourhoods. For municipal authorities, investors, and developers the task to work together to create and sustain viable neighbourhoods with an attractive and quality mixed-use building stock.

## Cooperation in New Coalitons (by Joris Winters)

Real estate is, by definition, part of a larger (urban) spatial pattern and thus influenced by the facilities in and attractiveness of the immediate local area. Since the late 90s, due to global trends of urbanization and climate change, the planning, design and (re)development of these local areas is subject to an expanded range of forces. This creates a need to take a more integrated view on the real estate life cycle and, as the location of real estate is fixed and the most important factor in long term returns, the opportunities for cooperation with neighbors and various stakeholders in the immediate area. Apart from that, when the horizon of a ‘future’ is considered, these forces urge all real estate market participants to apply a longer-term horizon.

A typical challenge is that when long term investments in the improvement of a local area have to be made, there is a *common* interest by the real estate owners, but the *individual* appetite to contribute is often limited. Individual stakeholders tend to perceive such investments primarily in terms of (additional) costs, rather than returns from long term resilience. They often argue that others – such as the municipality or local utility companies – should invest in improvements of the area. This phenomenon is well known from biological science as the tragedy of the commons.

## Dealing with Commons

A ‘solution’ to the challenge of the tragedy of the commons was developed by Elenor Ostrom, who was awarded the Nobel Memorial Prize in Economic Sciences for the underlying research in 2009. She argued that by pooling resources and forming coalitions, the likelihood to achieve effective long-term, collective governance of shared resources increased. Her work was based on the principle that common resources are well managed by those communities that benefit the most from them and that their regulation should be addressed at the local level, through the farmers, communities, local authorities and NGOs.

Can the Ostrom design principles be applied to cities to rethink the governance of cities and the management of their resources? Sheila Foster and Christian Laione (Georgetown University, Washington DC and University of Rome) have argued they cannot be simply adapted to the city context without significant modification.

They do find though that the concept of both economic and social “pooling” seems to capture the true essence of commons-based projects and policies in the urban environment. Another major pillar to govern urban commons is ‘experimentalism’: the presence of an adaptive and iterative approach to designing the legal processes and institutions. These notions of pooling and experimentalism might open opportunities to find solutions for common interest challenges – but then there is also the need to take a solid long term approach.

## Dealing with Long Term

Vague risks in the distant future, as expressed in theories of the ‘unknown unknowns’, are often ignored by humans. American scientist, author, and entrepreneur Gary Marcus concluded that the roots of this is in the interplay of four psychological mechanisms. First, concrete ‘lively’ information tends to have more impact than abstract information. Second, we do not calculate on (potential) benefits in the future and prefer one euro today rather that two over 12 months. Third, the reference-effect, in itself caused by ‘priming’: we are occupied by current topics, even if we see larger topics emerging later. Fourth: we tend to believe in a world of justice, where nature reaches its ‘self-equilibrium’.

Another important observation, in 1972, was by the Club of Rome: a person’s perspectives on time and space depend on his culture, his experience and the immediacy of the problems confronting him on each level. They pointed out that most people must have successfully solved the problems in a smaller area before they move their concerns to a larger one. And they observed that in general, the larger the space and the longer the time associated with a problem, the smaller the number of people who are concerned with its solution.

Richard Rumelt, the California-based thinker on strategy, has stressed the importance of proximate objectives: one that is close enough at hand to be feasible, naming a target that the organization can reasonably be expected to hit, even overwhelm. Kennedy’s 1961 speech on the US putting a man on the moon by the end of the ‘60s is perceived as an example of such a proximate objective. Rumelt

does not specify what qualifies as ‘proximate’, but does observe that the more dynamic the situation, the poorer your foresight will be. Therefore: the more uncertain and dynamic the situation, the more proximate an objective must be. Assuming such proximate objectives to be feasible, they can generate a strong drive for teams and organizations at large to achieve targets.

These theories lead to the general phenomenon that both individual humans and companies tend to overestimate the short impact of crises - but underestimate the long-term impact. In the case of climate change adaptation this results in significant risks for the decades ahead.

In their book *Radical uncertainty*, John Kay and Melvin King note there is limited purpose in seeking to attach detailed estimates of probabilities to a range of potential future states of the world. This is also a conclusion of KPMG, having analysed annual reports of 25 listed companies on the Amsterdam stock exchange in 2020, they demonstrate it is important to address the potential impact of scenario’s rather than trying to estimate probabilities, and to specify these in short, medium and long term. ABN Amro is mentioned as example of a company that has taken this approach in their 2019 report, where opportunities and risks of strategic differentiators are qualified within time horizons. Consequently, a ‘long term’ classification is applied for opportunities and risks that would materialize after 5 years, whereas the medium term is perceived as a 2 to 5 year timeframe – acknowledging though that ‘often there is an effect over the short, medium and long term’.

It is important to realize that the notion of long term and the associated time horizon very much depends on the type of organization and its mission and objectives. For start-ups for example, a 5 year business plan to forecast cashflows is perceived as long: ‘no one besides venture capitalists and the late Soviet Union requires five year plans to forecast complete unknowns’ .

On the other hand, for established firms and governments the long term might imply a time horizon of up to 50 years, as exemplified by Shell’s scenario’s, which consider long-term trends in economics, energy supply and demand, geopolitical shifts and social change, as well as the motivating factors that drive change. The typical horizon for these scenario’s is 20-25 years.

### Long term perceptions in real estate and finance

From a real estate investment perspective, what is typically considered as a long-term horizon for asset allocation? In the MSCI 2013 Global asset owner study, respondents were asked what they considered to be the appropriate time horizon for risk-forecasting in strategic asset allocation. The most common response was five years, although some thought that six months to a year was appropriate; others perceived the relevant horizon was ten years. This is a contrast to the nature of the future obligations of institutional investors, which can span 30 or 40 years ahead. In corporate and real estate finance, ‘long term’ can be up to 30 years: in 2019, Unibail Rodamco Westfield issued a bond due in 2049. Large, listed real estate investors

often apply a 10 year objective to achieve sustainability targets – such as becoming carbon neutral.

## The Road Ahead – Real Estate and Climate Adaptation & Energy Transition

A potential solution to address long term resilience in real estate at the level of district is in joint planning *and* participation in local entities by cooperation mechanisms, often structured in cooperatives or other special purpose vehicles (SPV's). These can effectively support transformations necessary to secure long term values for real estate, by enabling energy transition and climate change resilience.

Cooperation in new coalitions in joint ventures, also with parties from outside the traditional real estate domains, will be a crucial skill to remain competitive and adapt to new realities of climate change and energy transition. These are SPV's that integrate facilities to protect an area against the impact of climate change, typically in two domains:

- Adaptation measures: such as planning and co-investing in local infrastructure to protect area's against the future impact of climate change, improving resilience against flooding and / or urban heat islands
- Mitigation measures, focused on energy transition; generating and distributing renewable energy and / or by offering shared mobility solutions

Innovations to achieve such long term resilience and sustainability objectives are often subject to skepticism or threshold resistance. To demonstrate the viability and prospects of these cooperatives and SPV's, it I important to increase awareness of successful cases that have demonstrated that real estate can be 'protected' by preemptive planning and mobilizing (local) funding. We therefore now highlight a number of these in both domains.

## Climate Adaption Cases

A classic, local government initiated case is the development of Hafencity – a large mixed use riverfront redevelopment district in the city of Hamburg (Germany), adjacent to the Elbe river, where the City developed a mix of innovative strategies to manage flood risk. These enabled the area to be developed plot by plot, and that real estate development could start soon after the masterplan for Hafencity was approved by the Senat of the City of Hamburg in February 2000. The approach allows for some private responsibility for flood risk delegated to property owners and citizens. Nevertheless, the governance arrangement is dominated by the public parties involved. A local *verordnung (*law) forced property owners to implement and finance adaptive flood risk measures. Property investors and developers were required to design and fund the elevation of the building plots, to take additional flood protection measures (such as flood doors), to reserve the ground floor for other activities than living/sleeping and establish 'safe' area's in case the protection system fails to prevent flooding. A considerable amount of the cost of flood risk management is thus borne by the private sector.

The idea of pooling money to fund climate adaptation is also applied in San Francisco's ongoing waterfront redevelopments of Mission Rock and Pier 70, where developers have already invested in climate change resilience by elevating the ground by 1,5 to 3 meters. In 'Community facilities districts', fees ranging from $ 3,5 to 5 per square foot of property development are charged by the Port authorities to pay for adaptation work that it knows it will need as conditions change, but which cannot be planned 50 to 100 years out.

Another public-private case is Dutch developer BPD and the municipality of Kampen (Netherlands), who planned and developed a 'climate dike' with a length of 2 km and a width of 130 meters. This dike enables the development of 600 homes next to the IJssel river and protects the local area against potential flooding due to climate change.

Future models for long term real estate resilience are explored in the 7 Square endeavour program. These include various partnerships models to achieve long term climate adaptation and energy transition at the local urban area level with solutions in several fields which include transport, environment, water supplies, urban planning, existing buildings and quality of life. Its focus is on integrated solutions for energy management, cyclical processes and green-blue designs. Initiatives to achieve these are smart grids (on site energy-generation, storage and exchange facilities), re-use of 'grey' water, implementation of green roofs and other new technologies that can be applied by and for all the people who live, work and undertake leisure activities in this area. Besides helping to create a better environment, participation also offers economic advantages, such as savings on energy costs as a result of using less energy. An example is Rotterdam's Schouwburgplein, where 'private-private' partnerships were structured to solutions mentioned above.

*Figure 7: Square endeavour; artist impression Schouwburgplein, Rotterdam.*
*© Vereniging Verenigd Schouwburgplein.*

## Energy Transitions Cases

The energy transition necessary to meet Paris climate agreement targets also offers future opportunities for real estate market players to cooperate in new coalitions, possibly by participating in joint ventures.

Significant prospects are in the emergence of renewable energy partnerships, where various public and private stakeholders create joint ventures to generate and distribute renewable energy for a local residential and / or commercial property district. An example is Etriplus, an energy company established in the Greenport area of Venlo (Netherlands), founded in 2013 by the area developer, the Development Company Greenport Venlo (DCGV), and the private companies Alliander, Arcadis, Greenchoice and Ekwadraat. Etriplus is engaged in energy production, infrastructure and energy savings with the aim of providing renewable energy and price continuity to companies - an attractive proposition that will strengthen the competitive position of companies in the area. The conceptual approach is based on the 'Quatras Energetica' roadmap, delivering cost optimization, due to lower energy demands, price continuity and a lower carbon footprint.

In inner-cities and higher density residential environments, partnerships to enable the use of waste heat from supermarkets can be structured to improve sustainability of neighboring real estate. Examples are in Denmark where, since 2015, residents living near 20 of SuperBrugsen's supermarkets have their district heating supplied from the recovered surplus heat from the cooling system in the supermarket, reducing their CO2 emissions by 34%. This is the result of a cooperation between Danfoss heating systems, Sønderborg District Heating.

In more peripheral industrial and agricultural zones, cooperation to use waste heat from data centers offers opportunities – as long as the distance between the data center and properties to be heated is acceptable. An successful example is the Energy hub Aalsmeer (Netherlands): a unique energy exchange project by NorthC (data center) together with local greenhouse farming entrepreneurs and operators of nearby swimming pool and sports hall. These buildings use residual heat from the data center and are therefore completely free of natural gas. In exchange for the residual heat, the data center recovers cold and thus saves on its electricity consumption for cooling.

## References


7 Square Endeavour (22 Nov 2020). http://www.7square-endeavour.nl/EN/

BoC Business of Cities & Savills (2019) Europe's Core Cities: prospects for Mixed-Use Property Investment. Report written for Meyer Bergman Ltd

Clark, G (2020) Reactivating Europe – The Role of Cities. Key note presentation at ULI HSBC webinar 'Reactivating Europe – The Role of Cities', Dec 7th 2020. London, ULI, HSBC

Cohen, J. (2020). *Developing San Francisco's waterfront in the age of sea level rise,* Urban Land Magazine, fall 2020

Copernicus Institute of Sustainable Development, Utrecht University, the Netherlands (2013). https://edepot.wur.nl/341526

Danfoss (22 Nov. 2020). https://www.danfoss.com/en/service-and-support/case-studies/dcs/local-residents-stay-warm-thanks-to-supermarket-s-cooling-system/

Deana, K. (2020) Our Home is Our Castle. In Kok, H., P. Wessels. J. Veuger en K. Voolstra, eds: RICS white paper 'The Triple R of Covid-19: Reset, Recovery and Restructuring, pp 24-26. Deventer / Enschede, Blockchain Saxion University of Applied Sciences (UAS)

Etriplus B.V., (21 dec 2020) http://www.etriplus.nl/english-summery/

Fabius, V, S. Kohli, S. Moulvad Veranen & B. Timelin (2020); Meet the next-normal. Consumer. McKinsey & Company

Hardin, G. (1968). *The Tragedy of the Commons*, Science, New Series, Vol. 162, No. 3859, pp. 1243-1248

Jacobs, Jane (1961) The Death and Life of Great American Cities. New York: Random House

JLL (2020), Housing needs and resident preferences across Europe during Covid-19. London, JLL

Kok, H., P. Wessels. J. Veuger en K. Voolstra, editors (2020), *The Triple R of Covid-19: Reset, Recovery and Restructuring*. Essaybundel in E-book. RICS & Saxion University of Applied Sciences. https://bit.ly/2NZ5oTB

Land Securities (20 Nov. 2020) https://landsec.com/sustainability/our-sustainability-strategy

Marcus, G. (2014). Unknown unknowns, what should we be worried about? Real scenario's that keep up scientists at night, Edge foundation

Mintel (2020) Online Retailing: Inc Impact of COVID-19 – Europe, August 2020. London, Mintel Group Ltd

Oldenburg, Ray (1989) The Great Good Place. New York: Paragon House.

Olstrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge, UK: Cambridge University Press https://www.thenatureofcities.com/2017/08/20/ostrom-city-design-principles-urban-commons/)

Oxford Economics (2020) Data derived from Global Economic Database, Jan 2021. Oxford, Oxford Economics

Rumelt, R. (2011), *Good strategy, bad strategy,* Profile books, London

ULI Urban Land Institute and Ernst & Young (2020) Future of Work. Paris, Ernst & Young

Unibal Rodamco Westfield (20 Nov. 2020) https://www.urw.com/-/media/Corporate~o~Sites/Unibail-Rodamco-Corporate/Files/Homepage/INVESTORS/Financing-Activity/Bond-Issues/EMTN-Senior-Bonds/FR0013431715-500Mn-30Y-EUR-July-2049-Final-Terms.ashx

Wilson, B. (2020); Metropolis. London, Penguin Random House UK

# The use of social media in Real Estate Marketing: A research on actual real estate marketing in Kosovo and identification of best practices

**Albana Tuli Gjonbalaj**

**Besnik Vrella**

**Vetiola Recica**

European School of Law and Governance, Kosovo
albanagjonbalaj@gmail.com

## Abstract

The society has witnessed a huge change of media in our daily practices. It has come to the point where social media is used as a strong tool for marketing purposes. The pandemic has increased the use of social media to the point where it is being used to promote sales in real estate sector. It has shifted the promotion of real estate from other communication channels, to social media promotion mostly. The best practice is conducting the promotions based on a marketing strategy, created specifically to meet the needs of the company. This paper will depict the use of social media in real estate market in Kosovo. Since it's a new and rapidly growing activity, this paper will investigate whether the real estate agencies in Kosovo use promotion of the real estate is social media based on a marketing strategy, is the activity carried out in house or by specialized online presence management companies. The aim of this paper is to stress out the importance of marketing strategy in real estate market, in order to help in creating an organizational plan to help meet customer needs and identify key elements to be promoted and that way improve the property sales. For this purpose, besides literature research, a questionnaire with local real estate agencies will be carried out. The literature research will help identify the best practices in use of marketing strategy, while the results of the questionnaire will help in identifying whether the practice of promoting based on a marketing strategy is present or not.

Keywords: social media, pandemic situation, real estate market, Kosovo.

## Introduction

### The importance of having a Marketing Strategy

Marketing Strategy is interesting, challenging and important because it is inherently people-driven and it is never stagnant. A distinct blend of art and science, marketing strategy is about people inside an organization finding ways to deliver exceptional

value by fulfilling the needs and wants of other people (customers, shareholders, business partners, society at large) as well as the needs of organization itself. (Ferrell et al. 2021). According to Kotler marketing strategy is the marketing logic by which the business unit expects to achieve its marketing objectives. Marketing Strategy consists of making decision on the business's marketing expenditures, marketing mix and marketing allocations in relation to expected environmental and competitive conditions. (Fifield, 2012)

"Marketing Strategy is defined as an organization's strategy that combines all of its marketing goals into one comprehensive plan". It offers a blueprint for achieving these marketing objectives. Marketing strategy is the basic building block of a marketing plan. A good marketing strategy requires in-depth market research and focus on the right product mix to attain the maximum profit potential and uphold the business. A marketing strategy helps a brand to focus on its insufficient resources on the best possible opportunities so as to amplify the sales. (Easy Management Notes)

Marketing strategy has a great impact on sales and the growth of the business. It is a key on achieving the business targets and winning the market. Having a marketing strategy helps businesses gain a competitive edge in the market. With the right marketing strategy, businesses can get an edge over the competitors and even the new contestants trying to establish their footprints in the industry. (Easy Management Notes)

### The use of social media as marketing tool

Marketing has developed a lot these years by adapting to the new technology. "Digital Marketing" and "Online marketing "are very used daily basis in achieving the company targets in market. According to Chaffey, more and more people are researching the term "digital marketing" as companies attempt to make the transition from traditional marketing efforts to digital. Chaffey defines "digital marketing" as "achieving marketing objectives through applying digital technologies" (Fremont College). In her article with WhiteSharkMedia.com, Cordon explains that "online marketing"-also referred to as "internet marketing"- is actually just a subset of digital marketing. While digital marketing deals more with digital technology, online marketing focuses more on marketing campaigns that require live internet connection, such as pop-up ads and PPC campaigns (Fremont College).

Social media marketing is the business use of social media channels to understand customers and engage them in such a way that leads to the achievement of ultimate marketing and business goals. Often it is difficult to see how these emerging channels and business goals fit together and new channels have grown so rapidly that research has often lagged practice ( Hajli, 2015)The tools and approaches for communicating with customers have changed greatly with the emergence of social media; therefore, businesses must learn how to use social media in a way that is consistent with their business plan (Mangold and Faulds 2099).To consider social media as a marketing tool a retailer must understand every aspect of it (Paquette, 2013).Sinclaire and Vogus (2011) cite O'Reilly's (2005) definition: "social media is a

broad term that describes software tools that create user generated content that can be shared."

Social media is not just about presence. Businesses are now endeavoring to increase engagement and interaction with their consumers, while riding on the viral nature of social media to increase their reach. As pointed out by Brendan Read, an industry analyst at Frost & Sullivan, the nature of social media or digital marketing jobs has changed from a focus on brand awareness to customer engagement, such as the use of hashtags or popular social site logos.

Use of social media in real estate market

Like most sectors, the real estate industry has been hugely impacted by the COVID-19 pandemic. Unlike many small businesses, however, agencies are also encountering a booming market. During 2020, social media became a critical tool for real estate agents (SCMP). A recent study conducted by real estate website, The Close, found that 44% of agents said that they gained a new client in 2020 due to posting on social media. In fact, social media was only second to referrals for obtaining new listings last year (SCMP). With technology headed to the forefront of the new real estate market and the typical buyer using the internet to search for homes, the internet is a prevalent factor in the homebuying process today. But what else is driving today's homebuyers? I believe it is everything they have learned from watching real estate reality-based content on TV and now, even more so, on social media (DiBugnara,2020).

*Figure 29: Social Media Today (The Close)*

According to Forbes many homebuyers will search on social media for homes that match their specific preferences. Hashtags can help them find all the little niches that they are interested in, for example, #farmhomes, #artistslofts, #livingroomideas, #brooklynrealesate. Companies can no longer expect to reach specific targets via traditional marketing that pushes out messages through advertising, brochures, direct mail, email, flyers and even websites. Social media has granted permission and access to consumers to share their opinion openly with the world, both good and bad. Being able to address both appropriately and timely can create lifelong brand advocates (Infinitee, 2017).

“If you’re not using social media, you’re at a disadvantage, because your competitors probably are,” wrote DP Taylor, business software expert, in a blog post for The Blueprint. He cited that same NAR study, which found that 77% of realtors use social media in one way or another (Rosanes, 2012).

There are many points that need to be considered before starting to use social media platforms for promoting and achieving company goals.

- **Gathering information** - In a data-driven digital era, knowledge is synonymous with success. The more detailed your insights, the more easily you’ll be able to identify the strengths and weaknesses within the social specialism, and refine your approach. (Paquette, 2013)
- **Choose your channels** - Once you have an understanding of your audience’s needs and preferences, as well as those of your competitors, deciding which social channels to adopt should be a relatively easy exercise! It’s also important to take into account your target audience. (Paquette, 2013)
- **Use hashtags** - Real estate hashtags help people who are interested in your content find you — otherwise, you're just lost out there among the masses in social media land (Taylor, 2021).
- **Use pictures and videos** - The best way to describe qualities of property these days is by using images that express its actual state.

Sharing important, relevant, and attractive content is one of the most effective ways to boost social media presence. This includes high-quality images and videos of the properties listed. Presenting interesting facts and features about a property can get potential buyers talking and increase engagement (Paquette, 2013). Social media is cited among Realtors as the best source for generating high-quality leads. But trying to make yourself present and active on every social media platform can quickly lead to spreading yourself too thin. Figure out which platforms work best for your situation and start there (Realtos Builder).

*Figure 30: Which platform to use ( Wozny,2017)*

*Facebook* - Best for: Real estate agents who wish to show the human side of their business in order to build relationships and turn potential clients into loyal

customers; also great for posting listings to Facebook groups for neighborhoods and communities

*LinkedIn* - Best for: Real estate agents who wish to connect with fellow agents and establish themselves as a trusted leader in the industry

*Instagram* - Best for: Real estate agents who have a younger target market and wish to focus on sharing their business through high-quality visuals

*Twitter* - Best for: Real estate agents who wish to post frequently about news, announcements and other timely information

**Actual situation in Kosovo**

Digital data and insight for social media and e-commerce use through years

Over the past decades, marketing has had to keep up and deal with development in technology and our relation to it ever since. Sales first started to evolve/increase with the invention of the telephone, followed by the rise of radio and television. Radical changes in this industry were made with introduction of the first commercially available personal computers.

It's impossible to see what the future holds, but technological developments such as the internet, big data and smartphones are going to make huge changes in the way we look at marketing and predict how they can set the scene for the future.

Timeline: Early days of social media

In following text we are going to present a timeline on how social media platforms have emerged.

- 1996: The first social networking and video website is Bolt, which was active from 1996-2007
- 1997: A site called Six Degrees was created where users could upload profile information and connect with users by making 'friends'
- 1997: AOL launched its Instant Messenger service, who acquired it from an Israeli based company, originally called ICQ and launched in 1996
- 1999: This was the launch of LiveJournal, the first popular blogging platform
- 2000: Habbo, a game based networking site, was released
- 2002: Friendster launched, where users made profiles, connected, and share content
- 2003: LinkedIn launched the first business-orientated social networking site
- 2004: Facebook, the most popular platform of all time launches
- 2005: Youtube has emerged, popular video publishing/sharing platform
- 2007: Twiter has emerged, social media platform

Sources: GlobalWebIndex, PewResearch

Currently we are witnessing surge in using social media outlets throughout the world, especially during the pandemics. This is being reflected in Kosovo as well. In following graphic are presented some of the most important KPIs when it comes to the use of social media worldwide.

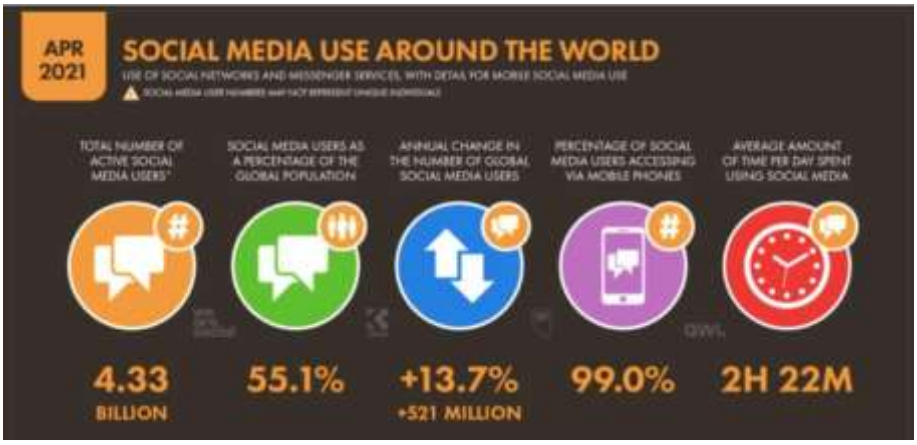



*Figure 3: Social media use around the world (www.smartinsights.com)*

Most popular social networks according to the latest survey that was done in July 2021 (www.statista.com ) are: Facebook with 2 853 million active users, followed by Youtube with 2 291 million, and WhatsApp with 2 000 million active users.

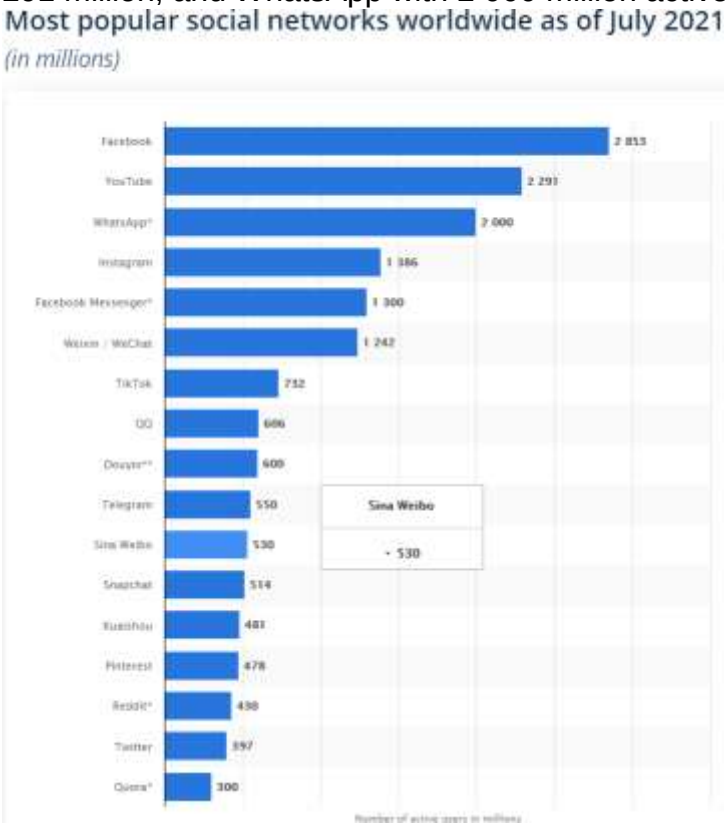



*Figure 4: Most popular social networks worldwide, July 2021 (www.statista.com)*

With new platforms emerging almost every year, we are witnessing also the shift of the audience from one platform to another, due to the advantages that some

platforms offer as compared to others. In the table below we are going to present categorization of the social media platforms based on their growth rate (percentage) during the last two years (2019-2021). In this way the audience will be able to have better understanding on which of the platforms have bigger potential to increase their ROI when it comes to implementation of Digital Marketing strategies.

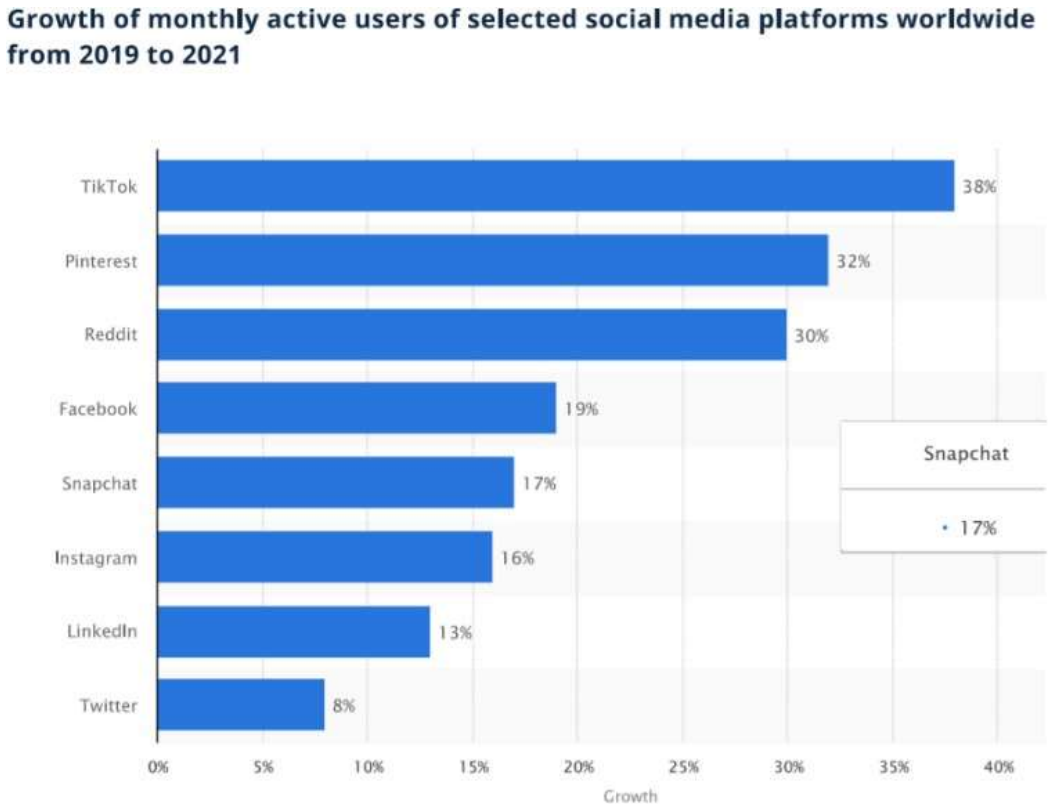



*Figure 5: Monthly growth of active users of selected social media platforms worldwide*

**Comparison of general data and insight before and after pandemic**

Use of social media outlets and visiting social media websites are common online activities among users that come from both sides of the real estate industry, the ones seeking services and the ones that provide those services. Over 50 percent of individuals in the European Union used social networks in 2016 (www.statista.com **)**. The penetration rate is higher among individuals who use the internet regularly. The Internet Penetration Rate corresponds to the percentage of the total population of a given country or region that uses the Internet.

In following text we are going to provide a short insight on usage (penetration rate) of internet in various EU countries as well as the ones in the Balkans region. Usage of social media by internet users has increased a lot during the last decade, especially during the pandemics. In following table we are presented percentages of active mobile social media penetration in our region and we made comparison with pandemics period:

| Country | 2020 | 2021 |
|---|---|---|
| Kosovo | 61% | 98% |
| Albania | 49% | 98% |
| Bosnia&Herzegovina | 52% | 97% |
| Bulgaria | 56% | 96.50% |
| Croatia | 51% | 97% |
| Macedonia | 53% | 97.20 % |
| Serbia | 42% | 95.90 % |
| France | 60% | 96% |
| Germany | 45% | 96% |

As it can be noticed in the above table penetration rate has increased a lot during pandemics in all European countries including the ones in our region. Cyprus, Kosovo and Albania were the European countries with the highest mobile social media penetration. This tells a lot about the potential of social medial advertising in real estate industry in Kosovo and other countries in the region and Europe.

Taking into account this potential, companies used this opportunity and increased their presence in the social media networks, as follows:

| Country | 2013 | 2019 |
|---|---|---|
| Montenegro | No records | 52% |
| Serbia | No records | 49% |
| Croatia | 30% | 47% |
| Germany | 29% | 45% |
| France | 17% | 50% |
| Bulgaria | 30% | 34% |

(Sources: www.statista.com & Eurostat)

As it can be noticed, usage of social media from companies for business purposes has increased a lot throughout the years, especially during pandemics. There's strong correlation between increased number of social media users and number of companies using social media for the purpose of advertising. There's a huge shift of advertising from conventional one (newspaper, billboards, radio, TV) to social media due to the numerous reasons, mainly because of easier tracing of the audience and KPIs that are of the big interest for the companies. Real estate industry makes no exception here. With the development of technology and making it affordable even for small businesses, it has become easier to create professional appearance in any of the popular Social Media platforms. In this way serving as bridges between service providers and service seekers, with affordable costs.

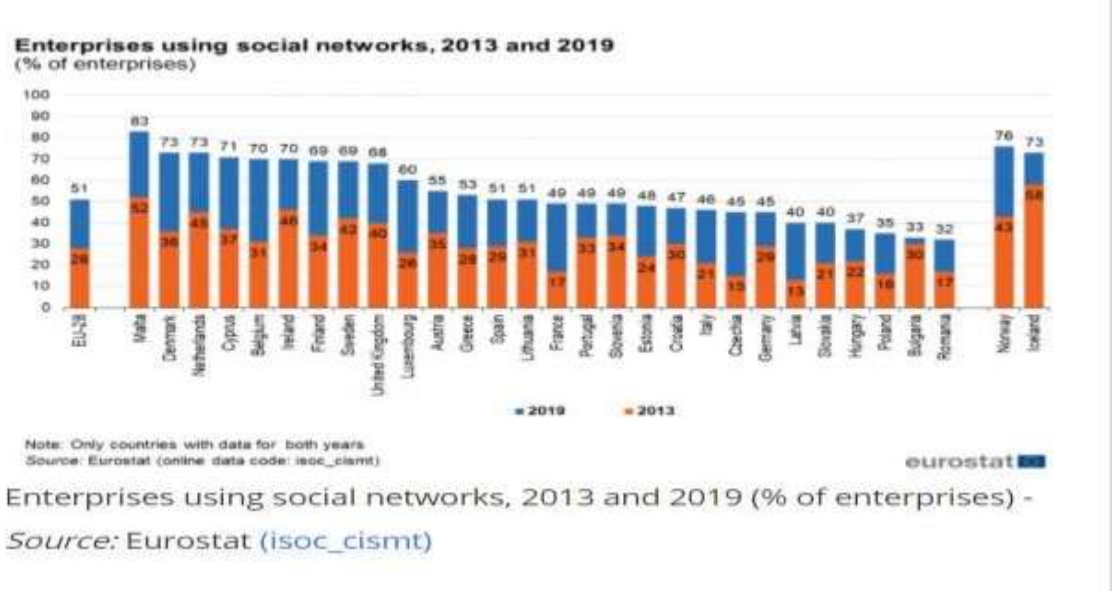



*Figure 6: Enterprises using social networks, 2013 and 2019*

In 2016, 38 percent of individuals in the EU-28 used social networks daily. The country with the highest share of daily social media use was Denmark, where 59 percent of the population participated every day or almost every day.

Social networks are used for a variety of purposes. Ten percent of individuals in the EU-28 had a profile on professional social networks such as LinkedIn and Xing. The share of consumers who interacted with their banks at least once a week on social media amounted to an average of 36 percent in Europe. Among those who access the news in a digital format, social media was the second most used service to keep up with current events. Additionally, almost half of the time the news are read on social media and news aggregator sites, without users following the link back to the original article (www.statista.com ).

Average daily user of social media varies between countries. Leading country in Europe is Russian Federation with 148 minutes per user, followed by Portugal 138, whereas at the end of the table are Netherlands and Germany with 84 minutes per user each. This tells as lot about the potential of digital marketing among the business communities in those countries, including the ones in real estate.

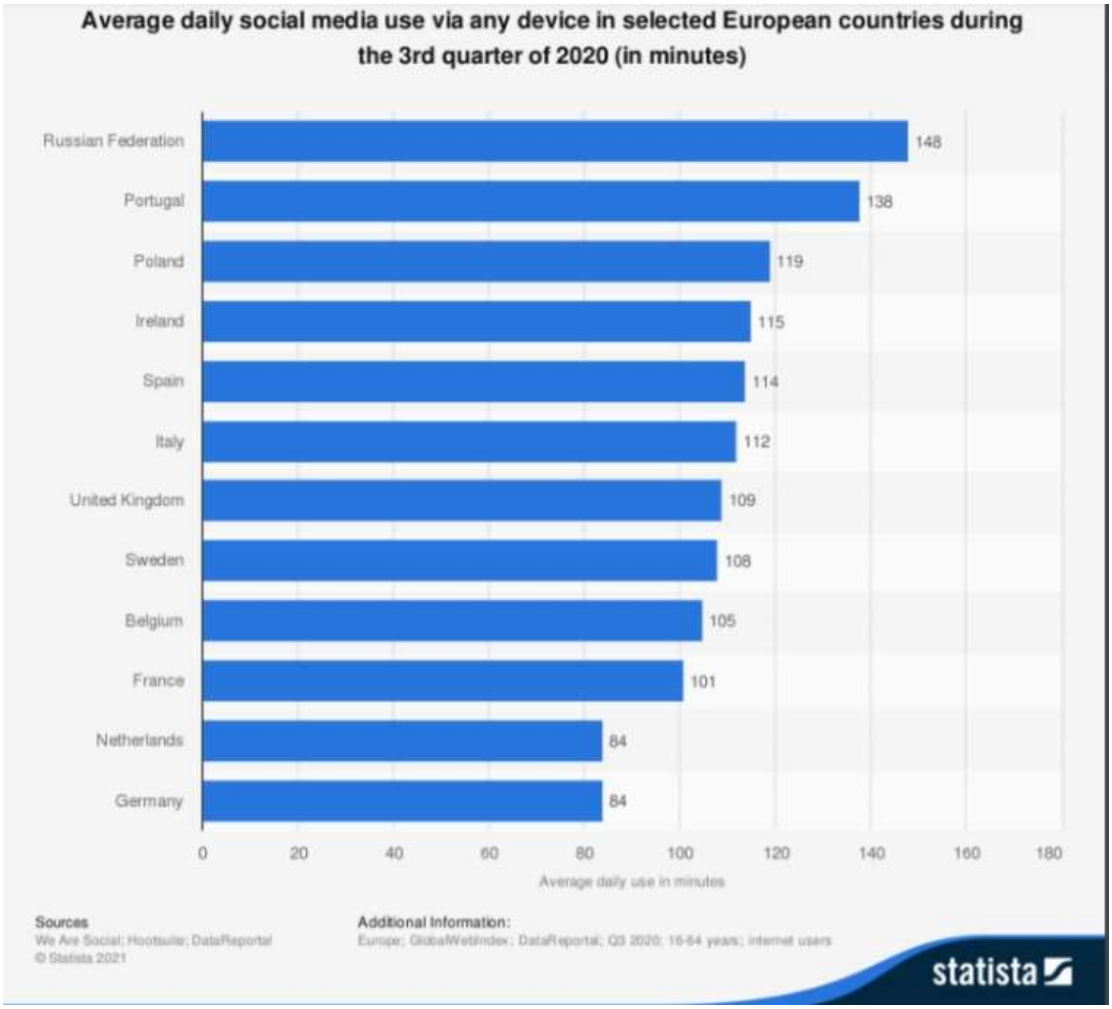



*Figure 7: Average daily social media use via any device in selected European countries during the 3rd quarter of 2020 (in minutes)*

**Results from the questionnaire**

The idea behind the questionnaire was to identify if real estate companies are using social media as promotion/ marketing tool based on a previously tailored Marketing Strategy. There was an assumption that some companies may not have the Marketing Strategy at all, but they use some elements of the strategy in their day-to-day activities. The questionnaire is consisted of three parts. The first section of the questionnaire was compiled of questions, which provided us with general information of the respondents, second part was compiled of questions related to the Marketing Strategy and the third part was compiled of questions related to the use of social media for promotion purposes.

The questionnaire is distributed to 98 identified companies that deal with real estate in general, and particularly with construction, construction and sale, property management and real estate agencies. The companies have been identified through social media, Facebook mostly, where contact information like email address, were found. These companies operate all over Kosovo region and their activity includes buying/selling activities, construction and property management not only in the

region of Kosovo, but outside Kosovo as well. The link for questionnaire compiled in Google Forms is shared through an email. Only a small number of companies responded to the request to complete the questionnaire, exactly only 16.3% of the companies to which the request is sent by e-mail. The companies were contacted again through Facebook direct messages, with a repeated request to fill the questionnaire, but this activity did not have such a big impact on raising the number of the respondents. In fact, it only showed that the contacted companies only use Facebook as a tool for promotion and not as communication tool. Our team realizes that 16.3% of respondents is not enough, but in the present situation when we do not possess any kind of related information, we will use this percentage to present to some extent the actual situation in Kosovo. Raising awareness for companies to take part in all kind of researches, will be the recommended for future.

The main question was related to the use of marketing Strategy in the company. Therefore, we will present the results based on positive versus negative responses to this question. Based on the results, only 31.3% of the companies carry out their marketing and promotion activities based on the marketing strategy document.

*Figure 8: The result from the questionnaire regarding whether companies possess the Marketing Strategy document*

Companies that have a marketing strategy will be analyzed for the presence of other elements of research, while those without a marketing strategy will be analyzed to identify whether they, despite the lack of document, still apply elements of a strategy in their daily work of marketing. One of many goals of this research is to present the results to the participating companies that don't perform based on Marketing Strategy and take all the necessary steps to inform and help inform them summarize their activities into one strategic document.

Companies that have declared to possess the Marketing Strategy

The majority of the companies (80%), who possess the marketing strategy deal with sales and business administration. These companies (60%) appear to be companies with more than 10 people as staff members while 40% of them are companies with less than 10 employees. They have been established in a range period 3-14 years. They have mainly stated that their marketing plan contains a

common plan with all the elements it should contain (based on the questions separately) with the exception of two companies which have stated that they do not do analysis of the typical buyer / seller. The majority of companies (80%) that have a marketing plan have in common the fact that their main objective is "agreements concluded per year" and the main element they base their analysis of their competition, is "agreements concluded per year". All these companies (100%) are present in social networks and some of them even on radio and web, and while stating that they get around 80% of their costumers from social media. The promotion activities for 60% of the companies is done in-house while 40% of them have hired a specialized company to deal with their presence in social media. All of the companies (100%) of them are present on Facebook and Instagram and of some of them on LinkedIn and Twitter. The main content that is posted on social media for 80% of the companies is photos and pictures of properties for sale/lease, while other 20% use social media for events promotion only. The amount of money spent for promotion on social media, reaches up to 2000€ per month.

Companies that have declared that they do not possess the Marketing Strategy

The other category of companies participating in the research, those that do not possess the document with the marketing strategy, are mainly small companies with 1 to 5 employees. Around 72% of companies that have stated that they do not have marketing strategies are small companies with up to 5 employees, while 28% have more than 5 employees. The main activity for 91% of the companies is sales and property administration. When analyzing the elements of marketing strategy, we can conclude that 91% of the companies have identified their unique value, while the average of other elements of marketing strategy analyzed separately is up 72%. These elements include responses from question regarding planning marketing activities, analyzing the profile of the typical buyer and seller for the company, demographic analyses, and competition analyses).

It has been noticed that 91% of the companies use social media as primary medium for promotion of their activities, while 55% prefer to have a qualified employee in to run their social medial activities and 45% prefer to hire a specialized company to manage their online presence. All of the companies (100%) are present in both Facebook and Instagram, while 55% are present in additional other social media platforms, such as LinkedIn and/or TikTok. A percentage of 81% of the companies stated that Facebook is the social media platform where they have biggest presence, while 19% stated Instagram as the platform where they have the biggest presence, while stating that they get around 80% of their costumers from social media. The main content that companies publish in social media platforms is photos/videos of properties for sale with the percentage of 91%, while 19% of the companies have stated that the main content they publish in social media, is success stories and achievements of the company. The costs for promotion on social media reach up to 4000€.

## Conclusions

Based on the research, it is clear that real estate marketing in Kosovo is on the rise. In this regard we present the conclusions for the research topic.

- For some unknown reasons, which are to be identified in the near future, real estate companies operating in Kosovo lack in cooperation with researchers. Only 16.3% of the contacted real estate companies have taken part in the research
- 31.3% of real estate, property administration and construction companies in Kosovo run their marketing/promotion activities based on a Marketing strategy.
- 69.7% of real estate, property administration and construction companies don't run their marketing/promotion activities based on a marketing strategy, yet they use elements of the marketing strategy to operate on their day-to day activities.
- Absence of marketing strategy is noted in small companies (up to five employees), while 80% of big companies (more than five employees) have marketing strategy
- Facebook is used as a primary medium for promotion activities of real estate companies
- All companies that were art of this research are present at least in Facebook and Instagram and some others in LinkedIn, Twitter and TikTok.
- 75% of the companies have chosen Facebook as the social media platform with the biggest presence, 19% have chosen Instagram, while 6% have chosen LinkedIn.
- Marketing/promotion activities are preferred to be done in-house by a trained employee rather than a specialized company who manages online presence for the companies, although the number of companies who hire specialized companies for managing their online presence is around 44%.
- It appears that companies without marketing strategy spend up to twice more for promotion on social media than the companies that base their marketing/promotion activities on a marketing strategy.
- Majority of companies (88%) have engaged their employees to promote the company's content on their private social media accounts.

## Recommendations

The research has provided us with some interesting figures which will help us give some recommendation regarding real estate marketing in Kosovo.

Basing their day-to-day activities on many elements of the marketing strategy, companies will find it very easy to compile the Marketing Strategy document. In order to achieve the best result for company sales, real estate companies should draw a strategy, which will help them set and achieve not only company's marketing objectives, but overall goals and objectives, at the same time lowering marketing promotion expences. It will help them target specific audience among their costumers, not only to rase the engagement of their social media profile, but to raise the company's image among other real estate companies in Kosovo. This will help the owners to build a body of customers review and comment which will speak highly for the product and services that companies offers and will lead to something called

reputation marketing for the company. It's noted that the usual content to be promoted on social media is photos/videos of properties to be sold, but our recommendation is that companies should embrace user generated content, because it's proven to be much more influential on the purchases. Being present mainly in Facebook and Instagram, is the big enough reason to recommend companies to try out new channels and platforms to promote their companies, as well as try out and instead of promoting traditional elements such as space and location, try out different sustainable elements such as energy efficiency, life cycle costs and thermal and visual comfort. Our recommendation is to design a comprehensive project, through which the participating companies would be assisted in identifying the elements based on which they will be assisted to design the proper marketing strategy.

## References


Brooks, B. (2021) "Why Real Estate Agents are Prioritizing Social Media More than Email in 2021" [Online] Available from: https://www.socialmediatoday.com/news/why-real-estate-agents-are-prioritizing-social-media-more-than-email-in-202/594647/

DiBugnara, R. (2020) "Social Media Is the Biggest Factor in The New Real Estate Market" [Online] Available from: https://www.forbes.com/sites/forbesrealestatecouncil/2020/03/05/social-media-is-the-biggest-factor-in-the-new-real-estate-market/?sh=71cf391a6f6b

Digital Marketing Institute (2017) "A Best Practice Guide to Social Media Marketing" [Online] Available from: https://digitalmarketinginstitute.com/blog/a-best-practice-guide-to-social-media-marketing

Easy Management Notes "What are the Significance of Marketing Strategy? " [Online] Available from: https://www.easymanagementnotes.com/significance-of-marketing-strategy/

Ferrell, O. C., Hartline, M., Hochstein, B. W. (2021) "Marketing Strategy" United States: Cengage Learning.

Fifield, P. (2012) "Marketing Strategy" (n.p.): Taylor & Francis.

Fremont College "Definitions of Digital Marketing, Internet Marketing & Online Marketing" [Online] Available from: https://fremont.edu/digital-internet-online-marketing/

Hajli, N. (2015) "Handbook of Research on Integrating Social Media Into Strategic Marketing" United States: IGI Global.

Infinitee (2017) "The Benefits of Social Media for Commercial Real Estate" [Online] Available from: https://www.infinitee.com/the-benefits-of-social-media-for-commercial-real-estate/

Paquette, H. (2013) "Social Media as a Marketing Tool: A Literature Review" [Online] Available from: https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1001&context=tmd_major_papers

Realtor Builder "Why Realtors Need to be on Social Media Now More Than Ever" [Online] Available from:

https://www.suntrust.com/resource-center/homeownership/article/social-media-has-changed-the-real-estate-marketing-game0#.YSv6jI4zY2x

Rosanes, M. (2021) “How real estate agents can use social media to boost marketing” [Online] Available from: https://www.mpamag.com/us/mortgage-industry/guides/how-real-estate-agents-can-use-social-media-to-boost-marketing/255376

SCMP “Social media has become an essential marketing tool” [Online] Available from: https://www.scmp.com/article/1555623/social-media-has-become-essential-marketing-tool

Taylor, D. (2021) “3 Social Media Strategies to Use for Your Real Estate Business” [Online] Available from: https://www.fool.com/the-blueprint/real-estate-social-media/

Wozny K. (2017) “Real estate social media marketing that sells”

# Feasibility study of using AI-powered smart insole system to reduce back-pain among older workers in the Norwegian AEC industry

**Tausif Ahmed Ishtiaque**

**Alenka Temeljotov Salaj**

**Olav Torp**

**Mara Gabriela Diaconu**

NTNU Norwegian University of Science and Technology
tausif.a.ishtiaque@ntnu.no
alenka.temeljotov-salaj@ntnu.no
olav.torp@ntnu.no
mara.diaconu@ntnu.no

**Sarah Renée Ruepp**

**Martin Nordal Petersen**

**Stanley Chukwuebuka Nwabuona**

Department of Photonics Engineering,
DTU Technical University of Denmark, Denmark
srru@fotonik.dtu.dk
mnpe@fotonik.dtu.dk

**Magdalena Velciu**

**Luiza Spiru**

Ana Aslan International Foundation, Romania
magda.velciu@anaaslanacademy.ro

## Abstract

Every year, age-related government expenditure accounts for 20% of the GDP of Europe, and up to 60% of the blue-collar workers aged 50-59 who are put in early retirement say that they would prefer to stay in the workforce. Other than the obvious health hazard, such early retirement puts a burden on the social safety net, retirement benefits, etc. Previous studies have shown that one of the major problems among older workers is back pain, much of which stems from heavy lifting.This study aims to present the benefits and limitations of using a smart insole system. While the technology is not at a mature stage yet, this can be considered as a pilot project to map the expectations of the construction workers, who are the prime beneficiary group. Pressure sensors in the soles generate heatmaps that

allow us to identify incorrect posture using an adaptable Artificial Intelligence (AI) lifting engine. This data is then used to evaluate the lifting actions in real-time and preemptively warn the individuals. The target group consists of older blue-collar workers (>60 years) from the Norwegian construction industry, who are engaged in lifting heavy loads manually. From the user's perspective, registering the lifting action every time can be disruptive for their workflow. From a technical standpoint, the lack of a large enough database for training the model/algorithm limits the accuracy of this AI system. However, as more data is collected from the pilot project, the accuracy as well as reliability will be improved, and future versions can identify such incorrect lifting actions independently without requiring any intervention from the users. Also, we need to be aware that not all types of back pains are immediate, some may show up after weeks or even months of incorrect lifting, and these cannot be registered in the existing system. The lessons learned from this feasibility study will enable older workers to safely continue with their roles while reducing the risk of long-term back injury. Early signs show promise that this novel approach can improve work conditions not just in the construction industry but also extend to other sectors where such manual labor is in use.

Keywords: workplace, health and safety, construction industry, artificial intelligence.

## Introduction

The population across the European Union (EU) is expected to age rapidly in the coming decades, which will put a strain on the availability of the workforce in the labour market (Lisiankova & Wright, 2005). A good marker to document this demographic change is the old-age dependency ratio. This indicator is the ratio between the number of persons aged 65 and over (the age when they are generally economically inactive) and the number of persons aged between 15 and 64. Both social safety benefits and medical costs are forecasted to increase as the share of the old-age dependency ratio in the EU is projected to increase from 17% in 2010 to 30% by 2060 (Gagnon, 2014). Every year, age-related government expenditure accounts for 20% of the GDP of Europe, and up to 60% of the blue-collar workers aged 50-59 who are put in early retirement say that they would prefer to stay in the workforce (Bjerrum & Thøgersen, 2020). Other than the obvious health hazard, such early retirement puts a burden on the social safety net, retirement benefits, etc. A previous study from 2013 has shown that one of the major problems among older workers is back pain, much of which stems from heavy lifting (Roos et al., 2013). However, emerging innovations have the potential to address these issues. To do this, we intend to develop a mechanism to notify adult older workers about problematic lifting and the risk of developing back pain using a smart insole system. This is an important topic because, as shown in Figure 1, while workforce participation among the older population (age 55 or above) has grown moderately across Scandinavia over the last 15 years, the growth has been quite significant for the EU which saw participation rate grow from 43% in 2007 to 60% in 2020 (OECD, 2021).

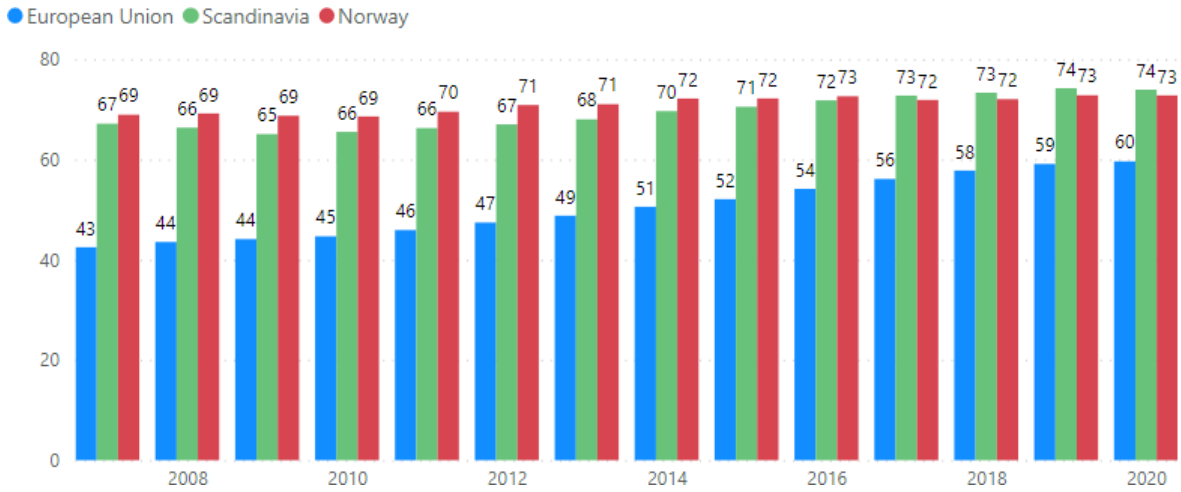



*Figure 1. Participation of older workers (55-64 age group) in the workforce (OECD, 2021)*

When we combine the increased presence of older workers and their heightened susceptibility to certain health-related issues (such as back pain, lung disease, etc.), it is clear that we need to put a higher focus on developing solutions that will allow this vulnerable group to safely carry on with their daily tasks. While Scandinavian countries (Denmark, Norway, Sweden, Finland and Iceland) already had a relatively higher rate of workforce participation among the older workers, there has been a drastic jump for the EU with participation growing by 33.46% over the last ten years, as shown in Table 1.

*Table 1. Change in the employment rate of older workers in the 55-64 age group (OECD, 2021.*

| | Norway | | Scandinavia | | European Union | |
|---|---|---|---|---|---|---|
| | % Employed | Growth rate | % Employed | Growth rate | % Employed | Growth rate |
| 2010 | 68.60 | - | 65.52 | - | 44.68 | - |
| 2015 | 72.20 | +5.25% | 70.54 | +7.66% | 52.10 | +16.61% |
| 2020 | 72.80 | +0.83% | 73.94 | +4.82% | 59.63 | +14.45% |

This paper presents our findings from the co-creation process done as a part ofthe SI-FOOtWORK project. This project aims to develop a personalized smart insole system to avoid or reduce back pain in the case of older workers. To do that, we present here the benefits and limitations of using a smart insole system from the perspective of end-users. While the technology is not at a mature stage yet, this can be considered as a pilot project to map the expectations of the blue-collar workers, who are the prime beneficiary group. Pressure sensors in the insoles generate heatmaps that allow us to identify incorrect posture using an adaptable Artificial Intelligence (AI) lifting engine. This data is then used to evaluate the lifting actions in real-time and pre-emptively warn the individuals. The target group consists of older blue-collar workers (>50 years) from the Norwegian construction industry, who are engaged in lifting heavy loads manually.

The purpose of this paper is to show the theoretical potential for implementing such a solution as well as highlight our plans for the user co-design phase. The main question that we are trying to answer here is, what is the best configuration to involve

end-users in the development process. While musculoskeletal disorders like back pain are more common in physically demanding jobs such as the blue-collar workers in the construction industry, the lessons learned from this project will enable older workers in other industries to safely continue with their jobs while reducing the risk of long-term back injury.

## Theoretical background

### Back pain in older blue-collar workers

The prevalence of long-term back injury among older workers is well documented. A study in the US found that older workers are 1.4 times more likely to suffer from back problems compared to the average blue-collar workers (Petersen & Zwerling, 1998). However, this issue is even more severe in the construction industry. Several studies have shown that older construction workers are more vulnerable to having emotional problems, musculoskeletal issues and lung diseases compared to their counterparts working in other industries (Boschman et al., 2012). In Scandinavia, a longitudinal study in the Dutch construction industry has found that while older construction workers are less prone to injuries in the workplace, they are more susceptible to musculoskeletal disorders compared to their younger counterparts (Hoonakker & van Duivenbooden, 2010). In Sweden, statistics have shown that musculoskeletal injuries (such as lower back pain) are responsible for 72% of all sick leave over 4-weeks duration in the construction industry (Holmström et al., 1995).

In the construction industry, older workers are also found to be more likely to opt for disability retirement than returning to the workplace after an injury (Welch et al., 2010). The quality of life, health, safety and wellbeing as experienced by the construction workers is a key indicator for sustainable labour performance (Ahmad et al., 2019). A study in the US construction industry by researchers at Johns Hopkins have found that a similar injury will result in more severe medical consequences for an older worker, which also translates to higher medical bills (Schwatka et al., 2012).

### Correct lifting posture

According to the National Health Service (NHS)in the UK, key points to consider before and while lifting a low-lying object is to keep your back straight and lift with your legs, and to keep the load as close to your body as possible (NHS, 2019). Lifting should keep body biomechanics as neutral as possible. Postures where the body is aligned and balanced are preferred such that the head is kept upright and is not turned to either side more than about 30 degrees or tilted forward or backwards more than about 15 degrees. Most ergonomic guidelines suggest that there should not be any twisting of the spine or jerking motion when carrying the load. Often, visual instructions are used to guide the person on how to perform this activity, as shown in Figure 2.

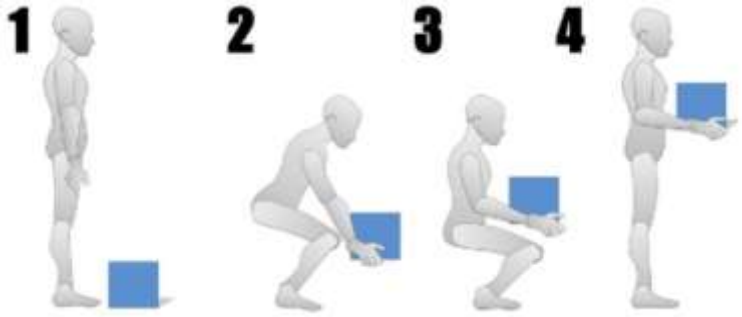



*Figure 2. Proper lifting technique (EHS, 2020)*.

Pressure sensors and incorrect lifting action

Insole pressure sensors have been used in the past in construction sites for fall detection (Antwi-Afari et al., 2018), risk perception mapping (Leei et al., 2021) etc. Specifically for the older population segment, sensor-based technology has been used to remotely monitor health, and the users generally have a positive attitude and high acceptance rate towards adapting such innovative solutions (Kaczmarek et al., 2019). The basic principle is that, from the force sensors located inside the insole, the centre of pressure (COP) is computed. In our case, a set of 60 features is computed with a direct approach and later reduced to eight via a hybrid feature selection. A neural network is then employed to classify the current posture of a worker, and ultimately the user is notified via the app, as illustrated in Figure 3. The data transmission from the insole device to the backend takes place using narrowband IoT (NB-IoT) communication. NB-IoT is a robust technology that has been used in the healthcare research industry, with work underway to improve reliability even further and ensure there is no data loss (Ballal et al., 2020). A similar study has been conducted in the past to determine the risk of developing work-related musculoskeletal disorders (WMSDs) (Antwi-Afari et al., 2020), but it primarily focused on overexertion related job tasks in a laboratory setting. We are attempting to cover all job tasks in an active construction site with a focus on older blue-collar workers.

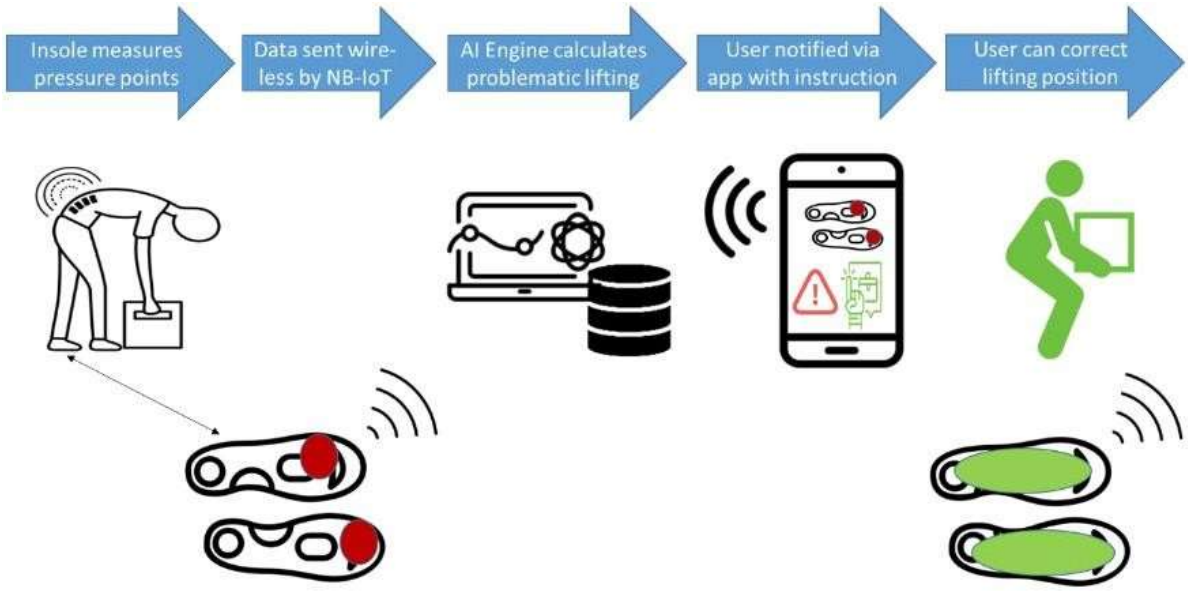



*Figure 3. Lifting action detection from pressure sensors.*

The work by Barkallah et al. presents an algorithm that can differentiate between adequate and inadequate postures using two wearable devices (helmet and instrumented insole) with an inertial measurement unit (IMU) and force sensors (Barkallah et al., 2017). Preliminary results suggest that neural networks could be applied successfully for the classification of adequate and inadequate posture. However, there is a shortcoming of this method. We need to be aware that not all types of back pains are immediate, some may show up after weeks or even months of incorrect lifting (Hoy et al., 2010), and these cannot be registered in the existing system. Hence, we have intentionally left out the passive injuries that occur from long-term heavy lifting for the purpose of this study. Some images from the user interface and the final prototype are given below in Figures 4 and 5.

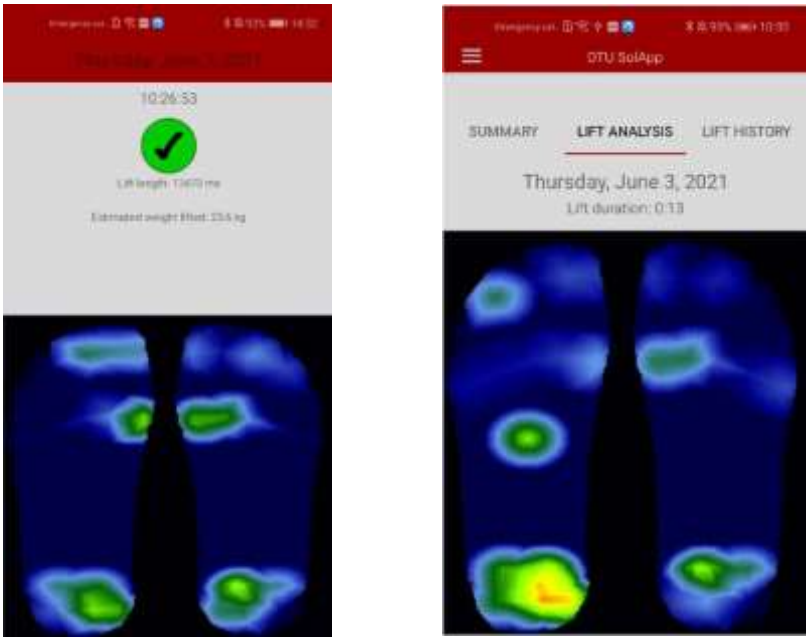



*Figure 4. Heat map generated from pressure sensors (Authors, 2021)*

*Figure 5. Prototype of the developed insole (Authors, 2021)*

Co-design process

Co-design (also known as participatory design) is a process of collaborative innovation where the users collaborate with the product designers/researchers to create a solution that is oftentimes more practical and is centred around the user's needs (Asaro, 2000). The traditional approach to finding a new solution has been that the users define a problem, and the designers come up with a solution. But the problem is that on many occasions, these solutions are not well-tailored to meet the

needs of users, partly as the users and designers have different perspectives of the problem (Visser et al., 2005). In the past, co-design has been successfully used within the AEC domain in areas such as co-creating public spaces with citizen participation, facilities management, etc. (Salaj et al., 2020). Co-design has been proven to increase the uptake rate of solutions, turning them from ideas on paper into a long-term sustainable innovation (Steen et al., 2011). For the co-design method followed in this study, the involvement of the end-users evolves over time, starting from the inform phase at first where they are introduced to the concept, and it ends with empower stage, where the product or service created through the process is handed over to the users for operational use. These stages are illustrated in Figure 6 below.

*Figure 6. Stages of involvement in the co-design process (Arnstein, 1969)*

## Methodology

In this project, user involvement in the co-creation process was done with three aims in mind:

i. To understand the user's needs, requirements, challenges, and expectations in order to know (and adjust the technology response) better how to respond to them.
ii. To define specific target users and investigate their needs.
iii. This stage is a background for optimizing the selection of end-users for the pilot phase.

The ultimate aim is to integrate users' feedback and develop a final product design ready for real-life applications. The overview of activities followed under the co-design process is illustrated in Figure 7. From the preliminary discussion process in phase 1, where we did the literature review as well as collected data about workplace injury and its impact, we could see that back pain was a problem area that is responsible for early workforce retirement, the strain on the social safety net, etc. The key to sustainable, long-term uptake of our solution was to involve end-users (in this case, blue-collar construction workers) in the process (Steen et al., 2011).

In phase 2, the co-design step, we started by increasing awareness about this issue. This involved disseminating relevant information to the construction firm Backe AS, collecting their thoughts on this, discussing our proposed solution, etc. The overall

goal was understanding the perspective of the users since otherwise, the solution will be based around our (the researcher's) understanding of the problem, which may not be the same as that of the users (Asaro, 2000).

The 3rd phase shown in Figure 7 will be covered in a later stage after we have initiated the pilot phase, and it will focus on how the solution can be further improved as per the user's feedback. This phase is beyond the scope of the current paper, but it is included here to give an overview of the work to be done in future. Furthermore, there is also an opportunity to link this information with BIM models, which can aid in further improving the functionality of BIM for health and safety applications (Ishtiaque & Klakegg, 2021).

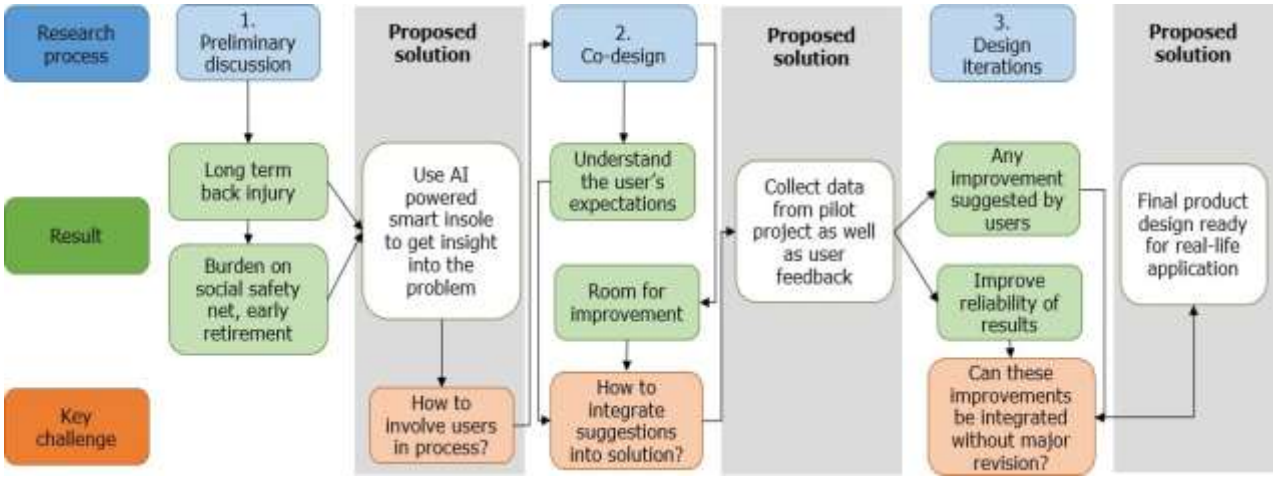



*Figure 7. Model of the co-design process*

The target group of users for our study are the older construction workers, and involving their requirements and suggestions give us not only the users perspective and important information about insole adjustments, notification systems, etc. but also specific information about the work process, such as workloads (e.g., lifting weights), task constraints, and performance-related pressures during daily activities at the workplace. This is important because co-creation is about sharing knowledge and prioritizing people's capabilities and healthy behaviours. Because blue-collar workers will be the most impacted by the technology, the co-creation permits them to make informed decisions about their working lives.

## Result and Discussion

### Partner organization and test user selection guideline

In our co-design process, we started with two construction firms (TOBB and Backe AS) and then chose to proceed with Backe AS since they are a better fit for our study. The main reasons why we decided to partner with this organization to test out this smart insole system are as follows:

i. **Large pool of blue-collar workers:** Backe Trondheim AS employs a total of 784 employees, and more than 200 of them are blue-collar workers (over 26% of the total workforce).
ii. **Low workplace injuries**: The H-value is an indicator that shows the frequency of occupational accidents per 1,000,000 hours worked, which are so serious that it results in absence from work. Backe Trondheim AS has a high standard for workplace safety with an H-value of 2.3 in 2020.
iii. **Active construction sites during the summer period:** Backe Trondheim AS will continue working on the various projects throughout the summer, and as such, the time frame matches well with our project timeline. The test users chosen for our purpose are all working on the same project at Nedre Nyhavna in Trondheim.
iv. **Ease of monitoring:** It will be relatively easier to monitor in person due to the close proximity of the project. This will be particularly advantageous for us later in the testing phase as we can directly monitor the workers using the smart insole system at the construction site and troubleshoot any errors quickly.

Once we had decided on the partner organization, next, the organization chose the test users based on the following selection criteria-

- More than 50 years of age.
- Must be involved in physical work.
- Availability during the pilot phase.

Finally, we mapped the end users' expectations from the project, which were collected via our contact person at Backe AS. The entire process is summarized in Figure 8 below. In order to ensure compliance with the ethical aspects of gathering personal data, it was decided that all personal data gathered from test subjects will be protected in line with the GDPR guidelines.

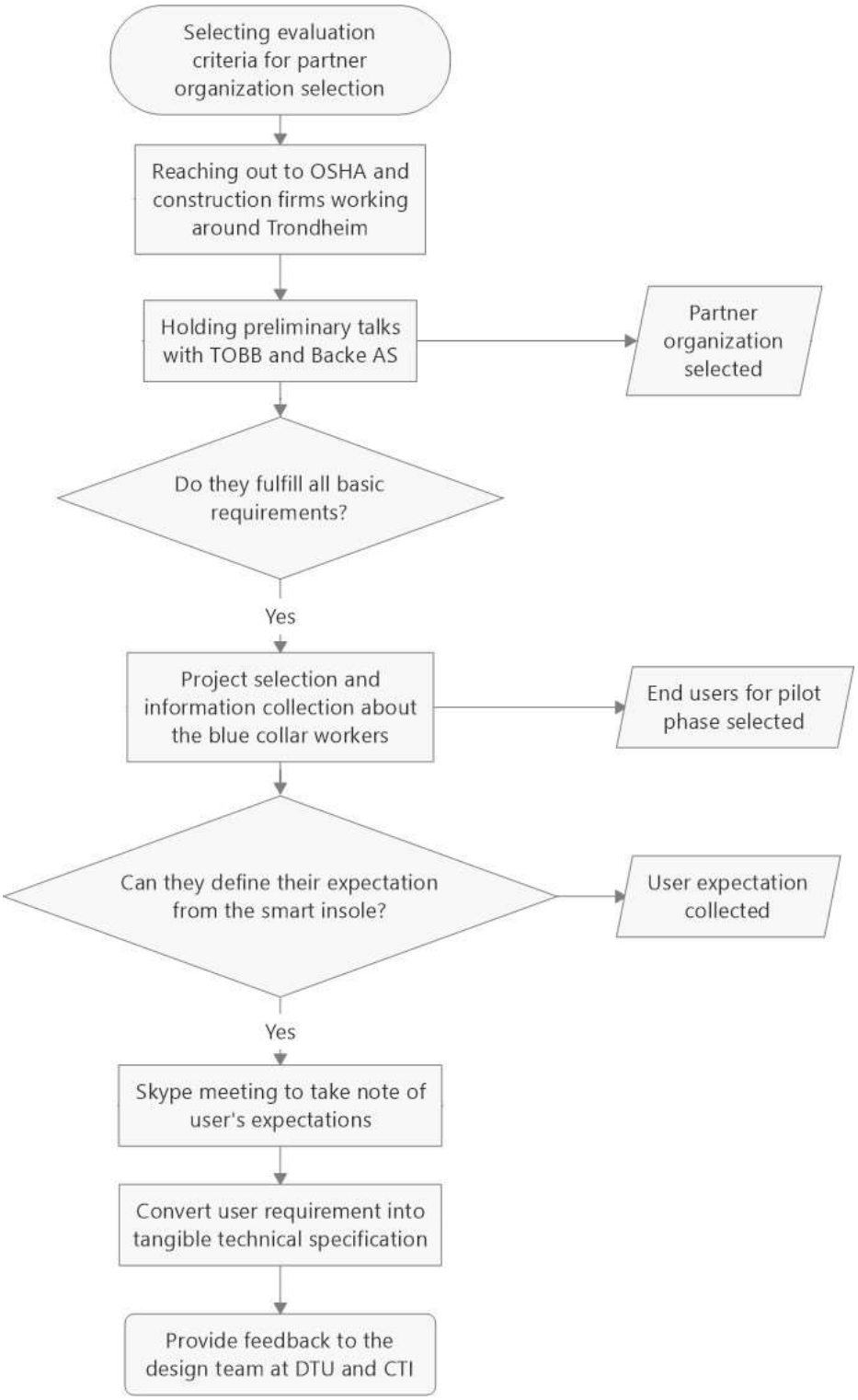



*Figure 8. Partner organization selection process*

Potential concern areas

The main concerns raised by Backe AS can be categorized into four groups, as shown in Fig. 9. As the workers will have to register a lifting action before and interact with the app on their phone afterwards as well, it may impact their overall productivity. The robustness of the smart insole has also been a concern area since it will be used in a harsh environment. Other than this, the ease of interaction for the workers and how they can use the findings from this study for their own benefit are also areas that the partner organization has been interested in finding out.

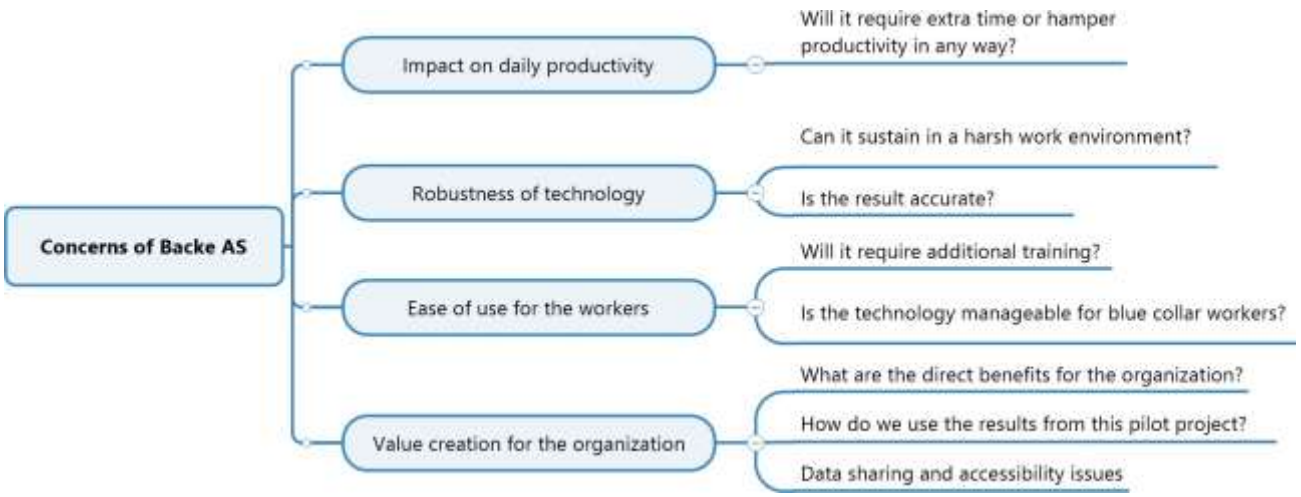



*Figure 9. Concerns raised by the construction firm*

Since the actual product will not be available to the end-users before the trial starts in September, it is to be expected that as the workers interact with the system, they will be able to provide more concrete feedback, and then we should have plans for design iteration that allows us to integrate the recommendations into the smart insole system. However, based on the feedback we have received till now, some of the key issues that will possibly have to be addressed as a part of design iterations may include-

i. **Feedback interval:** In the pilot phase, we need to identify whether the workers will benefit more from real-time feedback or a summary report periodically. The advantage of real-time feedback versus a summary report is shown in Table 2 below.

*Table 2. Real-time feedback versus summary report.*

| | Advantage | Disadvantage |
|---|---|---|
| Real-time feedback | Users will be able to immediately correct improper posture. | May create a distraction from regular tasks, slowing down the overall productivity. |
| Summary report (periodically) | It does not create any delay or time loss in checking feedback from the smart insole every time a lifting occurs. | Depending on reporting frequency (daily, weekly, etc.), it may have limited use or benefit for the workers. |

ii. **Requirement for lifting action registration:** As per the design plans up to this point, the users will have to interact with the application in order to

register when they do any heavy lifting. While it would be ideal to have a machine learning model which is mature enough to identify when a lifting takes place by itself, preliminary assumptions from the developers at DTU and CTI indicate that such a level of accuracy may be hard to get at an early phase.

iii. **Passive feedback:** This may include for example, collecting and analyzing data on how the users are interacting with the app, what kind of information are they more interested in, how long does the average session last, are there some features in the app that are not used as often as it should have been, etc. If we can integrate both active and passive feedback collection, we can get a more holistic overview about the product's performance compared to only relying on direct feedback from the users.

iv. **Other issues:** Apart from the ones listed above, due to the novelty of the technology in the construction industry, we may have to deal with other issues such as connectivity, troubleshooting, etc., that cannot be foreseen now. It will be possible to paint a clear picture of the scenario once the pilot phase is in progress.

Road forward

So far, we have been successful in mapping the end users' expectations from this project as well as other deliverables promised under the 1st and 2nd phase of the methodology, which includes finding a partner organization, laying the groundwork for the pilot testing phase, site selection, shortlisting users for the testing, etc. A workshop will be done once we get the complete insole system before the actual test phase. This will include training the workers, mapping expectations before and after the project (understanding, benefits, etc.), and most importantly, figuring out what do the blue-collar workers want out of this project? It is possible that they have some ideas which are totally different, and we will check the feasibility of integrating them into the existing product after consulting with the design team. In parallel, the system will be iteratively evaluated and tested with end-users from different fields of activity, including health care professionals (testing in Romania) and cross-referencing the results will help us understand if there are some dominating factors unique to the specific industry, for example. Overall, we hope to gain knowledge about the factors driving safe-lifting behaviours (as trigger factors) and the real "touchstone" for researchers is to make people change their (unsafe) lifting behaviour before the back pain appears and how to influence people to correct the lifting position and take care of their health at their workplaces.

## Conclusion

To address the potential health hazard from back pain among older workers, this paper covers our strategy for engaging with older blue-collar workers from the Norwegian construction industry as well as highlight some of the potential challenge areas that may arise as we move into the pilot phase to test out the smart insole system. The main question that we set out to answer here is, what is the best configuration to involve end-users in the development process. Based on literature studies and discussions with industry professionals, we have opted to go for a collaboration model that allows both the management team and the workers to give

their feedback. The feedback from the users as well as data that will be collected during the pilot phase will allow designers to get a unique insight into the end user's requirements which will ultimately lead to a greater uptake of the proposed solution.

## Acknowledgement

The authors would like to acknowledge Active & Assisted Living programme (AAL) for their support of SI-FOOtWORK project (http://www.aal-europe.eu/projects/si-footwork/). This project is carried out by a consortium of 5 European organizations, namely: Technical University of Denmark (Denmark), Norwegian University of Science and Technology (Norway), Canary Technology Innovations SRL (Romania), Hoka Tæpper og Gulve (Denmark), Ana Aslan International Foundation (Romania). It is funded by the AAL programme, EU, Innovationsfonden Denmark, Research Council of Norway and UEFISCDI Romania.

## References

Ahmad, S. B. S., Mazhar, M. U., Laedre, O., Bruland, A., & Torp, O. (2019). Improvement measures to achieve sustainable construction labour performance [Article]. *International Journal of Construction Management*. https://doi.org/10.1080/15623599.2019.1613205

Antwi-Afari, M. F., Li, H., Umer, W., Yu, Y., & Xing, X. (2020). Construction activity recognition and ergonomic risk assessment using a wearable insole pressure system. *Journal of Construction Engineering and Management*, *146*(7), 04020077.

Antwi-Afari, M. F., Li, H., Yu, Y., & Kong, L. (2018). Wearable insole pressure system for automated detection and classification of awkward working postures in construction workers. *Automation in construction*, *96*, 433-441.

Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, *35*(4), 216-224. https://doi.org/10.1080/01944366908977225

Asaro, P. M. (2000). Transforming society by transforming technology: the science and politics of participatory design. *Accounting, Management and Information Technologies*, *10*(4), 257-290.

Ballal, K. D., Dittmann, L., Ruepp, S., & Petersen, M. N. (2020). IoT Devices Reliability Study: Multi-RAT Communication. IEEE World Forum on Internet of Things, WF-IoT 2020 - Symposium Proceedings,

Barkallah, E., Freulard, J., Otis, M. J.-D., Ngomo, S., Ayena, J. C., & Desrosiers, C. (2017). Wearable devices for classification of inadequate posture at work using neural networks. *Sensors*, *17*(9), 2003.

Bjerrum, H., & Thøgersen, M. (2020). Motionstilbud i Ældre Sagen. En undersøgelse af Ældre Sagens udbud af motionsaktiviteter, deltagere.

Boschman, J. S., van der Molen, H. F., Sluiter, J. K., & Frings-Dresen, M. H. (2012). Musculoskeletal disorders among construction workers: a one-year follow-up study. *BMC musculoskeletal disorders*, *13*(1), 1-10.

EHS. (2020). *Lifting and Material Handling*. Retrieved 24.08.2021 from https://ehs.unc.edu/workplace-safety/ergonomics/lifting/

Gagnon, J. (2014). Demographic Change and the Future of the Labour Force in the EU27, other OECD countries and selected large emerging economies.

Holmström, E., Moritz, U., & Engholm, G. (1995). Musculoskeletal disorders in construction workers. *Occupational medicine (Philadelphia, Pa.)*, *10*(2), 295-312.

Hoonakker, P., & van Duivenbooden, C. (2010). Monitoring working conditions and health of older workers in Dutch construction industry. *American journal of industrial medicine*, *53*(6), 641-653.

Hoy, D., Brooks, P., Blyth, F., & Buchbinder, R. (2010). The epidemiology of low back pain. *Best practice & research Clinical rheumatology*, *24*(6), 769-781.

Ishtiaque, T. A., & Klakegg, O. J. (2021). *Role of bim in mitigating information asymmetry and transparency: reality versus expectation* Dortmund International Research Conference 2021, Dortmund, Germany.

Kaczmarek, M., Velciu, M., Spiru, L., Bujnowski, A., Andrushevich, A., & Birrer, E. (2019). Methodology for assessing end-user requirements in the Ella4Life project: Elders' perspectives about self-monitoring ∗ . Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS,

Leei, G., Choi, B., Jebelli, H., & Lee, S. (2021). Assessment of construction workers' perceived risk using physiological data from wearable sensors: A machine learning approach. *Journal of Building Engineering*, 102824.

Lisiankova, K., & Wright, R. E. (2005). Demographic change and the European Union labour market. *National Institute Economic Review*, *194*, 74-81.

NHS. (2019, 2 August 2019). *Safe lifting tips*. Retrieved 16.08.2021 from https://www.nhs.uk/live-well/healthy-body/safe-lifting-tips/

OECD. (2021). *OECD emplyment database* https://stats.oecd.org/Index.aspx?DataSetCode=STLABOUR#

Petersen, J. S., & Zwerling, C. (1998). Comparison of health outcomes among older construction and blue-collar employees in the United States. *American journal of industrial medicine*, *34*(3), 280-287.

Roos, E. M., Hartvigsen, J., Bliddal, H., Mølgaard, C., Christensen, R. D. K., Søgaard, K., & Zebis, M. K. (2013). Forebyggelse af skader og sygdomme i muskler og led.

Salaj, A. T., Gohari, S., Senior, C., Xue, Y., & Lindkvist, C. (2020). An interactive tool for citizens' involvement in the sustainable regeneration. *Facilities*.

Schwatka, N. V., Butler, L. M., & Rosecrance, J. R. (2012). An aging workforce and injury in the construction industry. *Epidemiologic Reviews*, *34*(1), 156-167.

Steen, M., Manschot, M., & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design*, *5*(2).

Visser, F. S., Stappers, P. J., Van der Lugt, R., & Sanders, E. B. (2005). Contextmapping: experiences from practice. *CoDesign*, *1*(2), 119-149.

Welch, L. S., Haile, E., Boden, L. I., & Hunting, K. L. (2010). Impact of musculoskeletal and medical conditions on disability retirement—a longitudinal study among construction roofers. *American journal of industrial medicine*, *53*(6), 552-560.

# The compensation fee for the use of building land as a basis for greater financial independence of local communities

**Andrej Sluga**

**Božena Lipej**

Nova Univerza, Evropska pravna fakulteta, Slovenia
bozena.lipej@gmail.com

**Abstract**

Real property tax is an important source of revenue for local communities, and is one of the most important instruments of land policy. Several activities have been carried out in Slovenia over the last 20 years to introduce a unified, fairer, and more transparent real property tax. Amongst others, the Law on Real Property Tax was adopted in 2013, and subsequently annulled by the Constitutional Court of the Republic of Slovenia (US) in 2014. As one of the most important sources of revenue for municipal budgets to finance public spending cannot be abolished or replaced without the new legal regime in place, the compensation fee for the use of building land (NUSZ) is still used for the purpose of real property taxation. The aim of this paper is to present the development of the NUSZ, which was introduced as a public levy with several characteristics of a real property tax by the Law on Building Land in 1984. The legal bases are analyzed, which today allow the NUSZ to be maintained as a temporary solution until the new systemic legislation is in place. The financial impact of the NUSZ on the budgets of local communities is then presented, highlighting the importance of the quality of spatial and real property data, and of the Information Technology solutions used in the assessment of the NUSZ. The Municipality of Krško is presented as an example of good practice. The NUSZ should be replaced as soon as possible by a modern law which would regulate the field of real property taxation and its link to land policy as part of a new systemic regulatory framework. Delay in the reform of real property taxation increases the risk that the US will annul the NUSZ, and that municipalities will lose the legal basis for the levying of the NUSZ. After two decades, since the US found that the imposition of a real property levy on the basis of the NUSZ is legally inconsistent, and in concrete solutions unconstitutional, the adoption of a new law on real property tax is urgent. If the current NUSZ regime were to be repealed, local communities would be deprived of an important financial resource to carry out their tasks, with wider implications for proper functioning.

Keywords: real property tax, compensation fee for the use of building land,Slovenia

# Nadomestilo za uporabo stavbnega zemljišča kot podlaga večje finančne neodvisnosti lokalnih skupnosti


## Povzetek

Davek na nepremičnine je pomemben vir prihodkov lokalnih skupnosti, hkrati je eden od pomembnih instrumentov zemljiške politike. V Sloveniji je bilo v zadnjih 20 letih izvedenih več aktivnosti za uvedbo poenotenega, pravičnejšega in preglednejšega davka na nepremičnine. Tako je bil v letu 2013 sprejet Zakon o davku na nepremičnine (2013), ki ga je Ustavno sodišče Republike Slovenije (v nadaljevanju US) v letu 2014 razveljavilo. Enega od najpomembnejših virov prihodkov občinskih proračunov za financiranje javne porabe na ravni občin ni mogoče ukiniti ali nadomestiti brez uveljavitve nove pravne ureditve, zato se nadomestilo za uporabo stavbnega zemljišča (v nadaljevanju NUSZ) še vedno uporablja za namen obdavčitve nepremičnin.

Namen prispevka je predstaviti razvoj NUSZ, ki je bil uveden kot javnopravna dajatev z več značilnostmi davka na nepremičnine z Zakonom o stavbnih zemljiščih v letu 1984. Analizirane so pravne podlage, ki omogočajo, da se NUSZ ohrani kot začasna oziroma prehodna rešitev do uveljavitve nove sistemske zakonodaje. V nadaljevanju je predstavljen finančni učinek NUSZ v proračunih lokalnih skupnosti s posebnim poudarkom na pomembnosti kakovostnih prostorskih in nepremičninskih podatkov ter informacijskih rešitev, ki se uporabljajo pri odmeri NUSZ. Občina Krško je predstavljena kot primer dobre prakse pri izvajanju NUSZ.

NUSZ bi bilo treba čim prej nadomestiti z modernim zakonom, ki bi v sklopu nove sistemske ureditve uredil področje obdavčitve nepremičnin in povezavo le-te z zemljiško politiko. Z odlašanjem prenove sistema obdavčitve nepremičnin se povečuje tveganje, da bi US pravno podlago za odmero NUSZ razveljavilo in bi lokalne skupnosti izgubile pravno podlago za odmerjanje NUSZ. Po dveh desetletjih odkar je US ugotovilo, da obremenitev nepremičnin na podlagi NUSZ ni pravno konsistentna, v konkretnih rešitvah tudi neustavna, je sprejem novega zakona o davku na nepremičnine nujen. Če bi se veljavna ureditev NUSZ razveljavila, bi lokalne skupnosti ostale brez pomembnega finančnega vira za izvajanje svojih nalog, kar bi imelo širše posledice na njihovo delovanje.



Ključne besede: davek na nepremičnine, nadomestilo za uporabo stavbnega zemljišča, Slovenija


## Uvod

Davek na nepremičnine predstavlja enega najstarejših davčnih prihodkov, ki so ga poznale že stare kulture. Prihodki iz obdavčite nepremičnin predstavljajo vir proračunov lokalnih skupnosti v večini držav članic Evropske unije (EU) (Kukalova et al., 2021). V Sloveniji davek na nepremičnine ni uveden. Lastniki in uporabniki nepremičnin plačujejo NUSZ, ki je javnopravna dajatev z nekaterimi značilnostmi davka na nepremičnine, hkrati pa je eden od instrumentov zemljiške politike. Tudi

Gerbec (2014) ugotavlja, da je NUSZ javnopravna dajatev, ki samo formalno ni poimenovana davek in je povezana z uporabo komunalne opreme stavbnih zemljišč, ki jo zagotavlja lokalna skupnost. NUSZ je bil na podlagi Zakona o stavbnih zemljiščih (1984) uveden v letu 1984.

V razvitih državah davki na nepremičnine ne predstavljajo pomembnega vira financiranja, z vidika financiranja lokalnih skupnosti in ciljev davčne politike pa predstavljajo pomembno dajatev tako v Sloveniji kot tudi drugod (Snežič et al., 2009). NUSZ predstavlja skoraj 10% vseh prihodkov lokalnih skupnosti (Letno poročilo Finančne uprave RS, 2021). Vrsta davka in stopnja obdavčitve nepremičnin vpliva tudi na nepremičninski trg (Magnanelli et al., 2020).

Kljub zastarelosti sistem odmere nadomestila v veliki meri omogoča lokalnim skupnostim izvajanje zemljiške politike, saj lahko z višino nadomestila, ki je vezana na kriterije, kot so lega, namen uporabe oziroma komunalna opremljenost, lokalna skupnost učinkovito gospodari s prostorom (Kobetič, 2016). Rakar et al. so opozorili na dva vidika NUSZ (2008). Prek fiskalnega vidika je NUSZ vir sredstev za uresničevanje zemljiške politike, prek usmerjevalnega vidika pa je NUSZ lahko pomemben usmerjevalni instrument pri izvajanju te politike.

V letu 2013 je bil sprejet Zakon o davku na nepremičnine (2013) z ciljem uvedbe poenotenega, pravičnejšega in preglednejšega davka na nepremičnine namesto dajatev, povezanih z naravo davka na nepremičnine, kot so NUSZ, davek od premoženja ter pristojbina za vzdrževanje gozdnih cest. Davčna osnova za vse nepremičnine je vezana na oceno tržne vrednosti nepremičnin (posplošeno tržno vrednost nepremičnin). Predmet obdavčitve in zavezanci bi bili določeni na podlagi enovite evidence, s čimer bi se vzpostavil preglednejši in na ravni države primerljiv sistem obdavčitve nepremičnin. US je Zakon o davku na nepremičnine (2013) razveljavilo (Ustavno sodišče RS, 2014). Kljub temu je bila odmera NUSZ ohranjena kot začasna oziroma prehodna rešitev do uveljavitve nove sistemske zakonodaje na področju premoženjskih oziroma nepremičninskih davkov. Kot razlog je US že v letu 2000 navedlo (2000), da ni mogoče ukiniti enega od najpomembnejših virov prihodkov občinskih proračunov za financiranje javne porabe na ravni občin brez uveljavitve nove ureditve.

Skoraj 20-letna »začasnost« ureditve z NUSZ postavlja vprašanje, ali bi bilo smiselno do uvedbe davka na nepremičnine informacijsko in pravno novelirati sistem NUSZ. Projektni svet za prenovo sistema obdavčitve nepremičnin je v Poročilu (2020) izrazil zaskrbljenost zaradi zamikanja obravnave predlogov za prenovo sistema obdavčitve nepremičnin in zakona o davku na nepremičnine in opozoril, da je NUSZ tvegano podaljševati za nadaljnjih pet let, saj je iz dosedanjih odločitev US razvidna spornost pravne podlage za izvajanje NUSZ.

### Razvoj NUSZ kot predhodnika davka na nepremičnine

Kronološko je bil pred NUSZ v veljavi prispevek za uporabo mestnega zemljišča, uveden z Zakonom o prispevku za uporabo mestnega zemljišča (1966), ki je bil po vsebini finančna dajatev. Temeljni namen te dajatve, ki je nekaj izjemnega v evropskem prostoru, je bil zajemanje povečane vrednosti in ugodnosti

nepremičnine, ki jo ta ponuja lastniku ali uporabniku in je posledica tujih, praviloma družbenih vlaganj, in ne vlaganj konkretnega lastnika oziroma uporabnika (Vrečič, 2009).

NUSZ, ki je v veljavi, je bil uveden z Zakonom o stavbnih zemljiščih (1984). V času nastanka NUSZ je bila družbena lastnina, razumljena kot premoženje vsega delovnega ljudstva, ki je bilo dano v uporabo posameznim državljanom oziroma njihovim organizacijam. Družbena lastnina ni imela pravnega subjekta lastninske pravice (titularja), saj so bila družbena sredstva hkrati last "vseh in nikogar". V družbeni lastnini so bila vsebovana tudi zazidana in nezazidana stavbna zemljišča. Imetniki stanovanjske pravice in lastniki stanovanjskih hiš so imeli na zemljišču, na katerem je stala stavba, pravico razpolaganja. Na stavbnem zemljišču ni imel nihče lastninske pravice, saj je bila za družbenoekonomski sistem samoupravnega socializma v jugoslovanskem modelu družbene lastnine ključna zgolj pravica uporabe (Igličar, 2012).

Kljub spremembi družbenoekonomskega sistema in ponovni uvedbi lastnine na stavbnih zemljiščih je Zakon o stavbnih zemljiščih (1997) v 56. členu določil, da z dnem njegove uveljavitve preneha veljati Zakon o stavbnih zemljiščih (1984), razen določb prve in tretje alineje 41. člena ter določb VI. poglavja, ki zajema določbe 58. do 63. člena. V prvi in tretji alineji 41. člena zakona je določeno, da se sredstva za urejanje stavbnega zemljišča na območju naselij in na drugih območjih, namenjenih za kompleksno graditev, zagotavljajo z NUSZ v družbeni lastnini in s prispevkom posameznih investitorjev k stroškom za pripravo in opremljanje stavbnega zemljišča v skladu s tem zakonom in odlokom občinske skupščine ter z drugimi sredstvi. V 58. členu Zakona o stavbnih zemljiščih (1984) je določeno tudi, da se za uporabo stavbnega zemljišča odmerja NUSZ na območju mest in naselij mestnega značaja, na območjih, ki so določena za stanovanjsko in drugačno kompleksno graditev, na območjih, za katere je sprejet prostorski izvedbeni načrt, in na drugih območjih, ki so opremljena z vodovodnim in električnim omrežjem.

Neskladnost pojmov in institutov z ustavno in zakonsko ureditvijo je odpravil Zakon o graditvi objektov (2004), ki je v 218. členu predvidel odmero NUSZ samo za prehodno obdobje, s tem ko je za zazidana in nezazidana stavbna zemljišča ohranil v veljavi določbo prve alinee prvega odstavka 56. člena Zakona o stavbnih zemljiščih (1997) in s tem tudi določbe prve in tretje alineje 41. člena ter določb VI. poglavja, ki zajema določbe 58. do 63. člena Zakona o stavbnih zemljiščih (1984). Zakon o graditvi objektov je določil natančna pravila glede območij, za katere se odmerja NUSZ, uredil pridobivanje podatkov, potrebnih za odmero, in lokalne skupnosti obvezal, da odloke o NUSZ uskladijo z določbami zakona. Zakon o graditvi objektov je določil, da se nadomestilo odmerja ne le na območju mest in naselij mestnega značaja, ampak tudi na območjih, za katere je sprejet prostorski izvedbeni načrt in na drugih območjih, ki so opremljena z vodovodnim in električnim omrežjem. Omogočil je, da se od 1. 1. 2004 NUSZ odmerja za zazidana in nezazidana stavbna zemljišča na celotnem območju lokalne skupnosti.

Zakon o davku na nepremičnine (2013) je razveljavil predpise, ki so določali prejšnje oblike obdavčitev nepremičnin, med njimi Zakon o stavbnih zemljiščih (1984), Zakon

o graditvi objektov ter 403. do 406. člen Zakona o davčnem postopku (2011) in občinske odloke, ki so bili podlaga za odmero in plačevanje NUSZ.

Davek na nepremičnine je bil pogosto vezan na značilnosti nepremičnine, kot je število in velikost oken, število nadstropij… V lokalnih okoljih je davek na nepremičnine praviloma predstavljal glavni davčni vir (Predlog Zakona o davku na nepremičnine, 2013). Davek na nepremičnine je lokalni davek in ni predmet harmonizacije med državami članicami EU, kar izhaja iz razlik v odstotku davka na nepremičnine glede na vse davke v posamezni državi članici (Janouškova, Sobotovičova, 2021). Evropska komisija (2020) poudarja, da so države članice same odgovorne za pobiranje davkov in določanje davčne stopnje. EU usklajuje nekatere nacionalne davčne predpise in stopnje, kadar bi razlike med njimi lahko odvrnile prebivalce od nakupov in prodaje v drugi državi EU. EU spodbuja sodelovanje med državami članicami pri preprečevanju davčnega izogibanja in utaje, odpravljanju diskriminatornih ukrepov in zmanjševanju upravne obremenitve.

Raziskava Evropske komisije (2020) je pokazala, da se davki na nepremičnine, vključno s prometom nepremičnin, v strukturi vseh davkov gibljejo med 0,3 do 10 %. Predmet obdavčitve z davkom na nepremičnine je uporaba ali lastništvo zemljišč in stavb. Zavezanci za plačilo tega davka so fizične in pravne osebe. Odmera davka lahko temelji na ocenjeni vrednosti premoženja, na predvidenem dohodku od najemnine, na prodajni ceni ali kapitaliziranih donosih, lahko pa se davčna osnova določi na administrativen način, s katerim se na podlagi fizičnih lastnosti nepremičnine (npr. lokacija, velikost) oceni vrednost zemljišča ali stavbe. Zajetje posameznih vrst zemljišč in stavb v obdavčljivo osnovo je med državami popolnoma različno (Vrečič 2009).

Prehod iz sistema obdavčitve nepremičnin, temelječega na površini nepremičnine, v sistem, temelječ na vrednosti nepremičnine, je velik izziv v večini držav vzhodne in srednje Evrope (Starček, Petrovič, Cirman, 2017), kar se je pokazalo tudi v primeru Slovenije. Kljub poskusu uvedbe davka na nepremičnine leta 2013, davek še ni uveden, saj je US (2014) presodilo, da so določbe Zakona o davku na nepremičnine v neskladju z Ustavo RS (1991) in zakon razveljavilo v celoti.

**Izvajanje odmere NUSZ**

Skladno s pooblastilom iz 58. in 61. člena Zakona o stavbnih zemljiščih (1984) in 218. člena do 218 d. člena Zakona o graditvi objektov (2004) vsaka lokalna skupnost z odlokom predpiše in opredeli pogoje in merila za odmero NUSZ na svojem območju. NUSZ plačujejo zavezanci na podlagi odločbe, ki jo izda davčni organ, na območju katerega leži nepremičnina, in sicer na podlagi določb 403., 404., 405. in 406. člena Zakona o davčnem postopku (2011).

V 61. členu Zakona o stavbnih zemljiščih (1984) je dana podlaga za veljavnost Dogovora o usklajevanju meril za določanje območij, na katerih se plačuje NUSZ, in meril za določanje tega nadomestila (1986), ki določa, da se višina NUSZ določi z metodo točkovanja in z določitvijo vrednosti točke. V 62. členu Zakona o stavbnih zemljiščih (1984) so določeni zavezanci za plačilo NUSZ, ki so neposredni uporabniki zemljišča oziroma stavbe ali dela stavbe (imetnik pravice razpolaganja

oziroma lastnik, najemnik stanovanja oziroma poslovnega prostora, imetnik stanovanjske pravice).

Podlaga za odmero NUSZ je v neposredni povezavi s površino zemljišča in z ugodnostmi oziroma s koristmi, ki jih nudi opremljeno zemljišče lastniku oziroma uporabniku, in ne z vrednostjo premoženja oziroma nepremičnine, ki običajno predstavlja davčno osnovo za davek na nepremičnine. To pomeni, da mora lokalna skupnost kriterije za predpisovanje in določanje višine NUSZ prilagoditi in povezati z lastnostmi zemljišča ter njegovimi prednostmi, slabostmi oziroma njegovo namembnostjo in povezave tudi podrobno pojasniti. Okoliščina, koliko naj se določena lokacija obremeni, mora biti v razumni povezavi z lastnostmi zemljišča. Tako US (2001), ki pojasnjuje, da logiki, naj uporabnik plača nadomestilo v odvisnosti od tega, koliko mu lokacija ali posamezne druge značilnosti zemljišča omogočajo ugodnejše ali celo izjemno ugodne pogoje gospodarjenja, ni mogoče očitati arbitrarnosti. Odločitev lokalne skupnosti torej ni arbitrarna, če je višina obveznosti v razumnem sorazmerju z višino dohodka, ki ga prinaša izjemno ugodna lokacija. Omogočena prosta presoja lokalnih skupnosti glede kriterijev predpisovanja in določanja višine nadomestila je v praksi privedla do razlik v obravnavi ter predvsem v višini nadomestila. Do teh razlik prihaja tako med lokalnimi skupnostmi, kot tudi znotraj posamezne lokalne skupnosti. Velike razlike v obremenitvi med lokalnimi skupnostmi so ugotovili tudi Starček, Petrovič in Cirman (2017), in sicer je razlika v višini nadomestila za istovrstno nepremičnino lahko tudi več deset, celo stokratna. Pomanjkljivost sistema NUSZ se, poleg razlik v obravnavi, kaže tudi v tem, da so predmet obdavčitve le stavbna zemljišča in stavbe oziroma deli stavb.

**Odločitve us v povezavi z odmero NUSZ**

Pomemben pravni vir za odmero NUSZ so odločbe US. Odločbe US so splošno zavezujoče in učinkujejo erga omnes (zoper vse), kar izhaja tudi iz 1. člena Zakona o Ustavnem sodišču RS (2007), ki določa, da so odločbe US obvezne. Splošna obveznost tako izreka kot glavnih razlogov v obrazložitvi odločb je temelj, da se pri delovanju organov oblasti zagotovi spoštovanje temeljnih človekovih pravic, svoboščin ter drugih ustavnih načel in vrednot. Gerbec (2014) ugotavlja, da se zgodovina ustavnosodnih presoj predpisov s področja NUSZ začne kmalu po sprejetju Zakona o stavbnih zemljiščih (1984). Prva pobuda za oceno skladnosti NUSZ s takratno Ustavo SRS (1974) je bila vložena leta 1984, pozneje je bilo vloženih še nekaj pobud za oceno skladnosti glede določanja podlag za odmero NUSZ. Utemeljitve vseh pobudnikov so bile deloma enake ali podobne. Zakon o stavbnih zemljiščih (1984) naj bi bil v celoti v nasprotju z Ustavo SRS, pozneje z Ustavo RS, ker ni bilo zagotovljeno ustavno načelo enakosti. Ustavno sodišče SRS je leta 1986 prvo pobudo zavrnilo z utemeljitvijo, da se NUSZ plačuje za uporabo stavbnega zemljišča in ni nujno povezano z lastninsko pravico na takšnem zemljišču, temveč pomeni nadomestilo za uporabo in vzdrževanje zgrajene komunalne opreme.

Nadalje je leta 2000 US (2000) ugotovilo, da določbe Zakona o stavbnih zemljiščih (1984) o NUSZ, ki so z ozirom na 56. člen Zakona o stavbnih zemljiščih (1997) prehodno ostale v veljavi (do sprejetja nove sistemske zakonodaje o obdavčitvi

nepremičnin), niso v neskladju z Ustavo RS. Pobudniki so navajali, da je bil NUSZ uveden v času, ko so imela vsa stavbna zemljišča status družbene lastnine in je bilo utemeljeno, saj so uporabniki uporabljali družbeno premoženje (tuje zemljišče). Po izvedenem lastninjenju nepremičnin v družbeni lastnini so postale nepremičnine v družbeni lastnini lastnina fizičnih oseb. S tem, ko je stavbno zemljišče postalo lastnina fizične osebe, po mnenju pobudnikov, ni mogoče govoriti o nadomestilu za uporabo, saj za uporabo svoje lastnine v pravni državi ni dopustno pobirati plačila. US ni sledilo argumentom pobudnikov. Poudarilo je, da je NUSZ davčna obveznost, ki v prehodnem obdobju obremenjuje nove lastnike in uporabnike stavbnih zemljišč. Zato ta prehodna ureditev ni v neskladju z 2. členom Ustave RS o pravni državi, izpodbijana davščina pa kot vse druge davščine glede na 146. in 147. člen Ustave RS (1991) sama po sebi ne predstavlja posega v pravico do zasebne lastnine po 33. členu. Po mnenju US se je zakonodajalec zavedal, da veljavna ureditev plačevanja NUSZ ni primerna in pravno konsistentna. Zato je ni povzel v Zakonu o stavbnih zemljiščih (1997), temveč jo je zadržal kot prehodno ureditev do uzakonitve sistema obdavčitve nepremičnin. V prehodnem obdobju ni bilo mogoče ukiniti enega od najpomembnejših virov prihodkov občinskih proračunov za financiranje javne porabe na ravni občin.

Ena od pomembnejših odločb US, ki se nanaša na obdavčitev nepremčnin in NUSZ, je odločba US (2014). V postopku za oceno ustavnosti, začetem na zahtevo skupine poslank in poslancev Državnega zbora, Državnega sveta, Mestne občine Koper, Združenja občin Slovenije in Skupnosti občin Slovenije ter na pobudo Občine Rogašovci, je US presodilo, da so določbe Zakona o davku na nepremičnine v neskladju z Ustavo RS (1991) in zakon razveljavilo v celoti. Določilo je način izvršitve odločbe s tem, ko je do drugačne zakonske ureditve obdavčitve nepremičnin omogočilo uporabo predpisov iz prve do pete alineje 33. člena Zakona o davku na nepremičnine, vendar brez možnosti spreminjanja teh predpisov. To je pomenilo ponovno uvedbo NUSZ, kot je veljal pred uveljavitvijo Zakona o davku na nepremičnine. Med predpisi iz prve do pete alineje 33. člena Zakona o davku na nepremičnine so tudi občinski odloki, ki so bili izdani na podlagi VI. poglavja Zakona o stavbnih zemljiščih in prepoved spreminjanja je veljala tudi zanje. V izogib morebitnim pravnim dilemam je bil z razlagalno določbo 55. člena Zakona o izvrševanju proračunov RS za leti 2020 in 2021 (2019) lokalnim skupnostim omogočen sprejem novih odlokov. Z novimi odloki lahko lokalne skupnosti odmero NUSZ, v okviru zakonskih pooblastil, uskladijo z vsebino zakona, odločbami US, novimi prostorskimi akti ali odmero prilagodijo prostorski oziroma zemljiški politike lokalne skupnosti.

Na pomen NUSZ kot instrumenta zemljiške politike pomembno vpliva odločba US (2020). US je v postopku ocene ustavnosti in zakonitosti Odloka o NUSZ v občini Postojna nedvoumno odločilo, da je Občina Postojna s tem, ko je različno obravnavala stanovanjske objekte in počitniške hiše za individualno uporabo ter počitniške objekte, namenjene za pridobitno dejavnost, kršila načelo enakosti pred zakonom iz drugega odstavka 14. člena Ustave RS (1991). Zakonodajalec bi moral v bistvenem enake položaje urejati enako, v bistvenem različne položaje pa različno. Če so v bistvenem enaki položaji urejeni različno, mora biti podan razumen razlog, stvarno povezan s predmetom urejanja. US (2020) je presodilo, da Občina Postojna ni podala razumnih razlogov za razlikovanje zemljišč, na katerih so objekti

namenjeni počitniški uporabi, v primerjavi z zemljišči, na katerih so objekti za stanovanjske namene. Pri tem US ni upoštevalo utemeljitve lokalne skupnosti, da ima za različno vrednotenje stanovanjskih in počitniških objektov podlago v 61. člen Zakona o stavbnih zemljiščih (1984) ter je drugačna obravnava imetnikov objektov, ki so namenjeni počitniški uporabi utemeljena tudi s tem, da imajo ti zaradi bližine turističnih znamenitosti v lokalni skupnosti večje možnosti pridobivanja dohodka iz tega naslova.

V isti zadevi je US (2020) določilo, da oprostitve plačila NUSZ, kot so navedene v 59. členu Zakona o stavbnih zemljiščih (1984), niso dopustne. Med te oprostitve spadajo zemljišča, ki se uporabljajo za potrebe ljudske obrambe, stavbe, ki jih uporabljajo verske skupnosti za izvajanje verske dejavnosti, novogradnje stanovanj in stanovanjskih hiš ter oprostitev plačevanja NUSZ osebam z nižjimi dohodki. Poleg navedenih oprostitev, ki po odločbi US niso več mogoče, je US (2020), odpravilo tudi določbo 13. člena Odloka (2007), ki je omogočala odmero višjega NUSZ za prazne oziroma nezasedene stanovanjske in poslovne objekte. US je odpravo utemeljila s tem, da zasedenost oziroma zapuščenost stanovanjskih ali poslovnih objektov ni določena med merili, iz 61. člena Zakona o stavbnih zemljiščih (1984), ki dopušča uporabo drugih kriterijev oziroma meril pri predpisovanju oziroma odmeri nadomestila. Le-ti morajo biti izbrani tako, da so skladni z naravo nadomestila in njegovim namenom, predvsem lastnostmi, kot so komunalna opremljenost, lega, namembnost itd. Kriterij zasedenosti prostora oziroma objekta po mnenju US ne odraža lastnosti stavbnega zemljišča, ki vplivajo na njegovo uporabo.

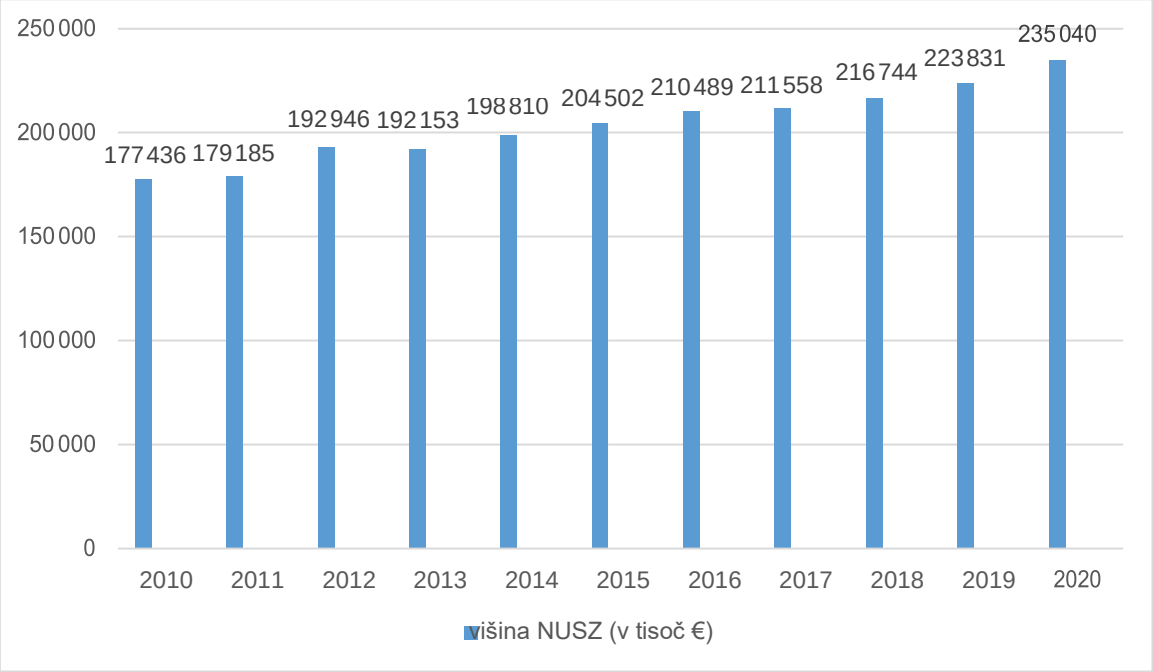
Odločba US (2020) učinkuje splošno, kar pomeni, da morajo lokalne skupnosti spremeniti svoje predpise o odmeri NUSZ na način, da ne delajo razlik med zemljišči, na katerih so objekti namenjeni počitniški uporabi v primerjavi z zemljišči, na katerih so objekti za stanovanjske namene, odpraviti vse oprostitve ter prenehati z višjimi odmerami za nezasedene ter nevzdrževane objekte. S temi omejitvami NUSZ izgublja pomen kot instrument zemljiške politike.

**Finančni učinek NUSZ v proračunih lokalnih skupnosti**

Zakon o graditvi objektov (2004), je dal podlago, da je dajatev iz prejšnje družbenoekonomske ureditve dobila novo preobleko in ostala vir za financiranje izgradnje objektov in naprav kolektivne komunalne potrošnje, kot so NUSZ opredelili Rakar et al. (2008). Prihodki od NUSZ, kot oblike davka na stavbna zemljišča, so eden najpomembnejših davčnih prihodkov lokalnih skupnosti v Sloveniji (Starček, Petrovič, Cirman, 2017). Predstavljajo pomemben vir, ki lokalnim skupnostim omogoča finančno in funkcionalno avtonomijo. O pomembnosti finančne in funkcionalne avtonomije lokalne samouprave se je opredelilo tudi US (2014), ko je odločilo, da lahko lokalne skupnosti predpisujejo davke in druge dajatve ob pogojih, ki jih določata Ustava RS in zakon. To pomeni, da so lokalne skupnosti pri predpisovanju davkov omejene z ustavnimi načeli in zakonskimi okviri, na kar opozarjajo US, Vlada RS in Državni zbor RS (US, 2014). Zakonodajalec mora pri določanju občinskih davkov upoštevati ustavni položaj lokalnih skupnosti, ki jim daje pravico do lastnih, avtonomno predpisanih finančnih virov.

Glede na izračune v Predlogu Zakona o davku na nepremičnine (2013) bi se s predlaganimi stopnjami in ob upoštevanju oprostitev in olajšav prihodki povišali s 192 milijonov EUR na okoli 412 milijonov EUR, kar bi pomembno vplivalo na javnofinančno sliko proračunov lokalnih skupnosti. Iz Bilance proračunov občin (2021) izhaja, da so vse lokalne skupnosti v letu 2020 realizirale 2,327 milijard EUR prihodkov. Iz Letnega poročila Finančne uprave RS (2021) je razvidno, da je bil znesek odmere NUSZ v letu 2020 228 milijonov EUR, kar pomeni, da NUSZ predstavlja skoraj 10% vseh prihodkov lokalnih skupnosti. Iz Preglednice 1 je razvidno, da je bil odmerjen NUSZ leta 2020 235 milijonov EUR, kar glede na odmerjen NUSZ leta 2010 predstavlja več kot 32% povečanje.

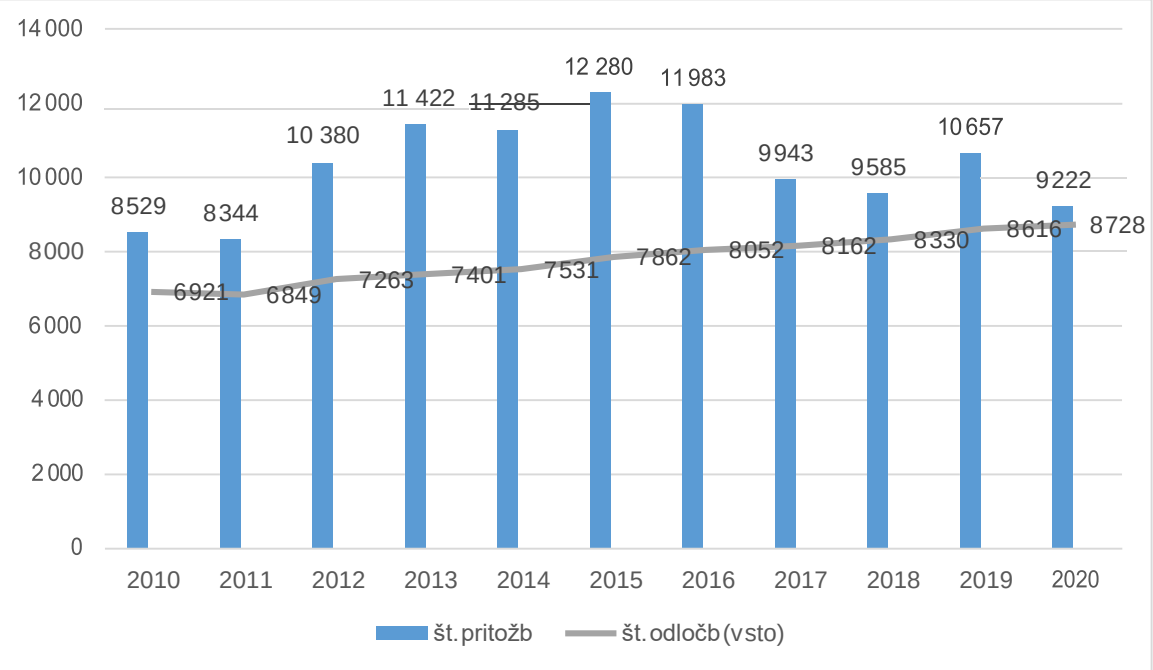
*Preglednica 1: Odmerjen NUSZ v EUR po letih*




Vir: Letno poročilo Finančne uprave RS (2021)

Kljub neuvedbi davka na nepremičnine so se prihodki proračunov lokalnih skupnosti iz naslova NUSZ pomembno povečali, kar je med drugim tudi rezultat sodelovanja ministrstev za okolje in prostor, finance in javno upravo, združenj občin in Finančne uprave RS. Ministrstva so pripravila Sistemska priporočila (2016) za ureditev sistema odmere NUSZ in organizirala več posvetov. Pripravljeni so bili vzorci občinskih odlokov, pristopilo se je k poenotenju evidenc o nepremičninah, skladno z drugim odstavkom 88.a člena Zakona o lokalni samoupravi (2007) je bilo izvedenih več nadzorov državnih organov nad zakonitostjo dela organov lokalnih skupnosti. V Poročilu (2020) je navedeno, da Finančna uprava RS ugotavlja, da lokalne skupnosti v največji meri sledijo napotilom glede izvajanja aktivnosti za odmero NUSZ kot so navedena v Sistemskih priporočilih (2016). Iz Preglednice 2 je razvidno, da se je število izdanih odločb o odmeri NUSZ leta 2020 povečalo za 26% glede na leto 2010. Leta 2020 je bilo izdanih 272.800 odločb za odmero NUSZ.

*Preglednica 2: Število izdanih odločb o odmeri NUSZ in število pritožb po letih*




*Vir: Letno poročilo Finančne uprave RS (2021)*

Iz Poročila (2020) izhaja, da se pozitivne posledice sistemskih priporočil odražajo tudi v trendu zniževanja števila pritožb. V letu 2020 je bil odstotek vloženih pritožb nižji od 0,6%. Trend rasti števila izdanih odločb in trend števila vloženih pritožb sta prav tako razvidna iz Preglednice 2. V letu 2019 je bil odstotek pritožb 1,22%, kar je predvsem posledica obdavčitve nezazidanih stavbnih zemljišč za območja tistih lokalnih skupnosti, ki so prvič pripravile podatke za odmero nadomestila za uporabo nezazidanih stavbnih zemljišč.

Finančna uprava RS je pripravila prenovljena Sistemska priporočila (2021) s ciljem bolj kakovostne in hitrejše odmere NUSZ. Poudarila je potrebo po nadaljevanju dobrega sodelovanju z lokalnimi skupnostmi ter doslednega izvajanja zakonskih obveznosti.

**Kakovost podatkov in informacijske rešitve v postopku odmere NUSZ**

Iz Poročila (2020) izhaja, da je zakonitost in kakovost odmere NUSZ odvisna predvsem od lokalnih skupnosti, saj se odmera NUSZ izvaja na podlagi občinskih predpisov o NUSZ in podatkov, pripravljenih in posredovanih od občin. Za odmero NUSZ si lokalne skupnosti uredijo lastno evidenco. Obveznost vodenja evidence o stavbnih zemljiščih, ki obsega zemljiškokatastrske podatke, podatke o naravnih lastnostih zemljišč, podatke o dejanski rabi zemljišč, njihovi opremljenosti, podatke o predpisanem varovanju zemljišč in o predpisanih omejitvah pri posegih na ta zemljišča, je v 8. in 67. členu določil že Zakon o stavbnih zemljiščih (1984). Lokalne skupnosti vzpostavijo evidenco NUSZ na podlagi podatkov iz lastnih virov in iz različnih javno dostopnih virov ter jo posredujejo pristojnemu finančnemu uradu, skladno s 404. členom Zakona o davčnem postopku (2011). Finančni urad RS na podlagi podatkov o zavezancih, številu točk za posamezen namen in vrednosti točke zavezancem izda odločbe za odmero NUSZ.

Finančna uprava RS v Sistemskih priporočilih - izvedba odmere NUSZ (2016) in v Sistemskih priporočilih (2021), ugotavlja, da zavezanci v pritožbah zoper odločbe o odmeri NUSZ največkrat navajajo napačno in nepopolno ugotovljeno dejansko stanje. To se v veliki meri nanaša na nepravilne podatke o komunalne opremljenosti stavbnega zemljišča, površine stavbnega zemljišča, podatke o zavezancih. Zavezanci so lahko uspešni, če izkažejo, da so bili podatki, na podlagi katerih je bil odmerjen NUSZ nepravilni, oziroma če v upravnem sporu ali nadaljnjih sodnih postopkih izkažejo neustavnost oziroma nezakonitost predpisov lokalnih skupnosti o odmeri NUSZ.

Od kakovosti podatkov in skladnosti odmere NUSZ z ustavnimi načeli ter zakonom je odvisno, v kolikšni meri se bodo zavezanci na odločbe pritoževali. Večje število pritožb prinaša večje administrativno breme, dodatne stroške in kot ugotavljajo Starček, Petrovič in Cirman (2017), lahko neodmera NUSZ, glede na pomen prihodkov od NUSZ, pomeni tudi pomembno tveganje za javnofinančni položaj lokalnih skupnosti. V Sistemskih priporočilih (2016) je navedeno, da morajo lokalne skupnosti poskrbeti, da bodo podatki o stavbnih zemljiščih, za katere se odmerja NUSZ, pridobljeni zakonito. Napotene so na določbe 218.c in 218.č člena Zakona o graditvi objektov, ki lokalnim skupnostim omogoča pridobivanje podatkov iz uradnih evidenc, predvsem iz zemljiškega katastra, katastra stavb in registra nepremičnin. Pravno podlago za pridobivanje podatkov predstavlja tudi 21. a člen Zakona o lokalni samoupravi (2007), ki določa, da lokalna skupnost pridobiva podatke, ki jih potrebuje za opravljanje nalog iz svoje pristojnosti, jih obdeluje ter opravlja statistično, evidenčno in analitično funkcijo za svoje potrebe.

Kakovost podatkov je povezana z zmožnostjo in sposobnostjo koristiti e-upravo, ki jo Groznik et al. (2009) razumejo kot uvajanje uporabe sodobne tehnologije in elektronskega poslovanja znotraj uprave med upravnimi organi ter tudi navzven z lokalnimi skupnostmi, podjetji in drugimi organizacijami. Na področju informatizacije je Vlada RS (2018) že v Akcijski načrt izvedbe Strategije razvoja javne uprave 2015–2020 za leti 2018 in 2019 zapisala, da je eden izmed strateških ciljev učinkovita informatika, dvig uporabe e-storitev in medopravilnost informacijskih rešitev. Tako je želela uporabnikom zagotoviti boljše in dostopnejše storitve ter spodbuditi njihovo večjo uporabo. Namen je bil tudi zagotoviti boljše upravljanje informatike, večjo učinkovitost in večjo stopnjo digitalizacije procesov ter boljšo izrabo virov.

Lokalne skupnosti so na področju NUSZ obdržale pravico do presoje in odločanja o uvajanju informatizacije. Iz Poročila (2020) izhaja, da so lokalne skupnosti glede sistema NUSZ samostojne in ga neodvisno prilagajajo trenutnim potrebam in razmeram. Projektni svet lokalnim skupnostim priporoča navezavo evidenc lokalne skupnosti na centralne državne evidence. Med njimi so najpomembnejše evidence Geodetske uprave RS, ki se bodo po uveljavitvi in začetku uporabe Zakona o katastru nepremičnin (2021) informacijsko prenovile in omogočile učinkovito vodenje in povezovanje podatkov. Lokalne skupnosti so odvisne tudi od podatkov Centralnega registra prebivalstva, ki ga vodi Ministrstvo za notranje zadeve, podatkov zemljiške knjige, za katero je zadolženo Vrhovno sodišče RS ter podatkov, ki jih vodi Finančna uprava RS. Z izgradnjo informacijske podpore bodo zagotovljeni pogoji za kontroliran vnos sprememb in boljšo povezanost nepremičninskih

podatkov Geodetske uprave RS in s tem posredno tudi za kakovost podatkov v prihodnje (Osnutek Zakona o katastru nepremičnin, 2019).

**Odmera NUSZ - primer dobre prakse Občine Krško**

V zadnjih letih lokalne skupnosti informatizirajo postopek odmere NUSZ, vzpostavljajo lastne evidence, ter prevzemajo potrebne podatke od njihovih nosilcev, vključno s podatki iz registra nepremičnin Geodetske uprave RS. Na trgu so v podporo računalniško podprti odmeri NUSZ na voljo različne programske rešitve. Občina Krško uporablja aplikacijo PISO (Prostorski informacijski sistem občin), podobno kot okoli 140 slovenskih občin in občanom ter podjetjem omogoča učinkovit javni vpogled v državne in občinske evidence. V okviru aplikacije PISO je razvit modul PISO NUSZ, ki omogoča pooblaščenim osebam na lokalni ravni posodabljanje evidence NUSZ, grafični prikaz odstopanj odmernih predmetov, pregled neskladja podatkov med lastno evidenco NUSZ ter podatki, ki se vodijo v registru nepremičnin ali so bili prevzeti iz drugih javnih baz podatkov. V nadaljnjem postopku izdelovalec aplikacije PISO osveži stanje podatkov lastne evidence s podatki katastrov in zemljiške knjige, centralnega registra prebivalstva ter poslovnega registra. Pregledajo se pritožbe zavezancev iz preteklih let, kjer se preveri ali evidenca NUSZ upošteva podatke, ki izhajajo iz ugodno rešenih pritožb. Na koncu vseh postopkov se izvede oddaja podatkov za odmero NUSZ na Finančno upravo RS.

Podatki iz evidenc, ki se povezujejo v evidenci NUSZ na občinski ravni v PISO, se ne osvežujejo in posodabljajo avtomatično, temveč je treba podatke ročno uvažati in izvažati. Pravilnost odmere NUSZ je odvisna od velikega števila podatkov, vezanih na zavezanca, predmet odmere, lego in lastnosti nepremičnine ter od meril, določenih z odlokom. Večina teh podatkov se lahko v evidenco za odmero NUSZ prenese iz registra nepremičnin. Kakovost evidence za odmero NUSZ se je povečala z uporabo enoličnih identifikatorjev stavb in delov stavb k obstoječim predmetom odmere (zemljiščem). Tako je vzpostavljena nedvoumna povezava med evidenco za odmero NUSZ in registrom nepremičnin, ki omogoča hitrejše in enostavnejše osveževanje podatkov. Nerešene ostajajo povezave evidence za odmero NUSZ z drugimi javnimi bazami podatkov, tudi z zemljiško knjigo. Informacijski sistem zemljiške knjige ne omogoča skupnega izvoza podatkov o nepremičninah, ki ležijo v posamezni lokalni skupnosti, temveč je zaenkrat omogočen le vpogled v vsako posamezno nepremičnino.

Evidenca zavezancev za plačilo NUSZ se po uveljavitvi Zakona o množičnem vrednotenju nepremičnin (2017) posodablja s podatki iz evidence trga nepremičnin. To je večnamenska zbirka podatkov o kupoprodajnih pravnih poslih z nepremičninami in o najemnih pravnih poslih za stavbe in dele stavb, ki jo vodi in vzdržuje Geodetska uprava RS. Evidenca zavezancev za plačilo NUSZ se posodablja tudi s podatki Finančne uprave RS o odmerjenem davku na promet nepremičnin. Za kakovostno vzpostavitev evidence za odmero NUSZ so poleg podatkov, prenesenih iz registra nepremičnin, pomembni tudi drugi podatki. Podatki katastra gospodarske javne infrastrukture lahko vplivajo na odmero, upoštevajoč merilo določitev stopnje komunalne opremljenosti za stanovanjske namene. Na odmero vpliva tudi izdano gradbeno dovoljenje za gradnjo na nezazidanem

stavbnem zemljišču. Podatek o izdanih gradbenih dovoljenjih se pridobiva iz Prostorskega informacijskega sistema, za katerega skrbi Ministrstvo za okolje in prostor.

Število pritožb zaradi nepopolno ugotovljenega dejanskega stanja se je v občini Krško, ki ima okoli 11.600 zavezancev za plačilo NUSZ, od leta 2014 znižalo za 78% in sicer iz 210 na 46 v letu 2020, kar predstavlja 0.4 % vloženih pritožb glede na vse izdane odločbe. Razlogi za pritožbe so velikokrat vezani na neaktivnost lastnikov nepremičnin, ki niso poskrbeli za vpis podatkov v nepremičninske evidence. Kljub temu je število pritožb v letu 2020 bistveno nižje od slovenskega povprečja in nizek odstotek pritožb je rezultat kakovosti nepremičninskih podatkov, ki se uporabljajo pri izračunu odmere. Kakovost podatkov je rezultat informatizacije postopkov in medsebojnih povezav podatkov, kjer je Občina Krško ena prvih, ki je procesu pristopila sistematično in je v širšem prostoru prepoznana kot primer dobre prakse.

**Zaključek**

Igličar (2012) poudarja, da je poimenovanje NUSZ nesistemsko in neutemeljeno, saj je tako nadomestilo tipični institut družbenolastninskega koncepta, ne pa sistema zasebne lastnine. Poimenovanje NUSZ je bilo smiselno in utemeljeno v času njegovega nastanka, ko je bilo zemljišče družbena lastnina in je bilo dano zgolj v uporabo posameznim upravičencem. Kljub navedenemu je US NUSZ prepoznalo kot temeljni vir finančnih sredstev, s katerimi razpolagajo občine. V letu 2000 ga je označilo kot sistem v prehodnem obdobju ter ocenilo, da čas trajanja prehodne ureditve ni v nasprotju z načeli pravne države, ki izhaja iz drugega člena Ustave RS. Morebitna ukinitev nadomestila zaradi pomanjkljivosti v njegovi pravni izvedbi bi brez nadomestnega finančnega vira resno ogrozila izvajanje zakonsko opredeljenih nalog občin. Tega sta se zavedala tako zakonodajalec v času sprejemanja Zakona o graditvi objektov v letu 2002, kot tudi US v svojih odločitvah v zadnjih 20 letih.

Projektni svet glede prenove sistema obdavčitve nepremičnin v Poročilu (2020) meni, da priprava posebne zakonske ureditve NUSZ za prehodno obdobje do sprejema novega sistema obdavčitve nepremičnin ni smiselna. Prav tako ni smiselna popolna digitalna prenova procesa odmere NUSZ. Ker težave pri odmeri NUSZ povzročajo nepopolne, neaktualne in neurejene baze prostorskih in drugih podatkov, ki imajo za posledico nižje prihodke lokalnih proračunov, bi bilo smiselno do uvedbe davka na nepremičnine zagotoviti možnost računalniške povezave s posameznimi skrbniki uradnih evidenc. Izziv za prihodnost je tudi izboljšanje uporabniške izkušnje za zavezance za plačilo NUSZ, da bi jim omogočili dostop do podatkov, ki vplivajo na odmero NUSZ. S tema korakoma bi evidenca NUSZ pridobila na kakovosti podatkov, kar bi se odrazilo na višjih prihodkih, hkrati pa bi se s preglednim prikazom podatkov, ki vplivajo na odmero NUSZ, dodatno zmanjšali število pritožb.

Postavlja se vprašanje, ali bi US ob ustrezno utemeljeni pobudi za presojo ustavnosti in zakonitosti odloka posamezne lokalne skupnosti finančno avtonomijo lokalne samouprave še vedno postavilo pred načelo zaupanja v pravo kot enega izmed (pod)načel pravne države, ter s tem ogrozilo izvajanje zakonsko opredeljenih

nalog občin. Odločba US (2020), s katero se lokalnim skupnostim onemogoča določanje oprostitev in določanje višje odmere za nezasedene ter nevzdrževane objekte kaže na pomemben odmik od dosedanje prakse US. Ne glede na prehodno ureditev in možnost sprejemanja novih odlokov so lokalne skupnosti tudi zaradi Odločbe US (2020) vse bolj omejene pri uporabi NUSZ kot instrumenta zemljiške politike. Odmik od dosedanje ustavnosodne presoje US glede ustavnosti obstoječega sistema NUSZ ter nesprejem Zakona o davku na nepremičnine predstavljata potencialno grožnjo neodvisnosti lokalne samouprave pri opravljanju in financiranju z zakonom opredeljenih nalog.

Stroka, združenja občin in gospodarska interesna združenja opozarjajo, da je treba izvajanje NUSZ čim prej nadomestiti z novim sistemom davka na nepremičnine (Poročilo 2020). Iz vsebine aplikacije Enotna zbirka ukrepov za boljše zakonodajno in poslovno okolje (2021) izhaja, da Vlada RS v tem mandatu davka na nepremičnine ne bo uvedla. Aktivnosti na področju množičnega vrednotenja nepremičnin, kot so spremljanje in analiza trga nepremičnin, preverjanje modelov vrednotenja in priprava sprememb za naslednji cikel množičnega vrednotenja nepremičnin v letu 2022, se nadaljujejo. Navedene aktivnosti bodo omogočile lažji prehod na pravičnejši davek na nepremičnine, ki bi nadomestil neprimeren in pravno nekonsistenten sistem NUSZ.

## Reference


Bilanca proračunov občin (2021). Bilanca proračunov občin od leta 2016 do 2020. Dostopno na https://www.gov.si/assets/ministrstva/MF/Proracun-direktorat/DP-SSFLS/Proracuni-obcin/Realizacija/BILANCE-PR_OBC-16-20_v_EUR-arhiv.pdf

Dogovor o usklajevanju meril za določanje območij, na katerih se odmerja NUSZ in meril za določanje tega nadomestila (1986). (Uradni list SRS, št. 19/86).

Evropska komisija (2020), Obdavčitev, https://ec.europa.eu/info/policies/taxation_sl

Enotna zbirka ukrepov za boljše zakonodajno in poslovno okolje (2021). Dostopno na: https://enotnazbirkaukrepov.gov.si/realizacija-ukrepov/naloga/456

Gerbec F,. (2014). Odprta pravna vprašanja sedanje ureditve nadomestila za uporabo stavbnega zemljišča. Podjetje in delo, št. 6-7, 2014, str. 1158-1170.

Groznik A., Trkman P., in Lindič J., (2009). Elektronsko poslovanje. Ljubljana. Ekonomsko poslovna fakulteta.

Igličar A., (2012), Upravičenost pojma nadomestilo za uporabo stavbnega zemljišča, Pravna praksa, št. 47, 2012, str. 16.

Janouškova J., Sobotovičova Š. (2021) Approaches to Real Estate Taxation in the Czech Republic and the EU Countries. International Advances in Economic Research 27 str. 61-73

Kobetič L., (2016), Instrumenti in ukrepi zemljiške politike na območjih stavbnih zemljišč, Podjetje in delo, št. 6-7, 2016, str. 1294.

Kukalova G., Pfeiferova D., Kucharova I., Regnerova O., Šturmova D. (2021). Coefficients of Real Estate Tax: Case Study of Czech Republic str. 484-494.

Letno poročilo finančne uprave RS (2021). Letno poročilo finančne uprave Republike Slovenije 2020. Dostopno na https://www.gov.si/assets/organi-v-sestavi/FURS/Strateski-dokumenti/Letno-porocilo-Financne-uprave-za-leto-2020.pdf

Manganelli B., Morana P., Rostato P., De Paola P. (2020). The Effect of taxation on investment demand in the real estate market: The Italin experiece. Buildings.10.115.10.3390

Odlok (2007). Odlok o nadomestilu za uporabo stavbnega zemljišča v ObčiniPostojna (Uradni list RS, št. 108/07, 117/07, 121/08, 85/10, 106/11).

Osnutek Zakona o katastru nepremičnin (2019). Dostopno na: https://e-uprava.gov.si/.download/edemokracija/datotekaVsebina/387653?disposition=inline

Predlog Zakona o davku na nepremičnine (2013). Dostopno na: http://vrs3.vlada.si/MANDAT13/VLADNAGRADIVA.NSF/18a6b9887c33a0bdc12570e50034eb54/A7DC1E8A9DF7924AC1257BFA005BFAF0?OpenDocument

Poročilo (2020). Poročilo Projektnega sveta za prenovo sistema obdavčitve nepremičnin za obdobje julij – december 2019 o realizaciji Programa in terminskega načrta izvedbe drugega sistemskega množičnega vrednotenja in prenove sistema obdavčitve nepremičnin ter zagotavljanja manjkajočih podatkov za leti 2019/20. Dostopno na: http://84.39.218.201/MANDAT18/VLADNAGRADIVA.NSF/277bdf36cd5b7373c1256efa00399a6b/e9e8c951d712250ec125851f0052b184/$FILE/PorociloPS_P.pdf

Rakar, A., Černe, T., Šubic Kovač, M. (2008). Fiskalna in usmerjevalna vloga javnih dajatev pri izvajanju aktivne zemljiške politike. Geodetski vestnik 52,4: str. 743-757.

Raziskava Evropske komisije (2020). Evropska Komisija. Davčne politike v Evropski uniji: raziskava 2020. https://data.consilium.europa.eu/doc/document/ST-5695-2020-INIT/en/pdf

Sistemska priporočila (2016). Sistemska priporočila za izboljšanje sistema za nadomestilo za uporabo stavbnega zemljišča. Dostopno na: https://www.gov.si/assets/ministrstva/MOP/Dokumenti/Zemljiska_politika/16_09_20_SJ_Priporocila_NUSZ_priporocilo.pdf

Sistemska priporočila - izvedba odmere NUSZ (2016). Finančna uprava RS. Sistemska priporočila za izboljšanje sistema za nadomestilo za uporabo stavbnega zemljišča – Izvedba odmere nadomestila za uporabo stavbnega zemljišča. Dostopno na: https://skupnostobcin.si/wp-content/uploads/2016/10/priporocila-furs-glede-odmere-nusz-5.10.2016.pdf

Sistemska priporočila (2021). Prenovljena sistemska priporočila za izboljšanje sistema za nadomestilo za uporabo stavbnega zemljišča – izvedba odmere nadomestila za uporabo stavbnega zemljišča. Dostopno na: https://skupnostobcin.si/wp-content/uploads/2021/03/prenovljena-sistemska-priporocila-za-izboljsanje-sistema-nusz.pdf

Snežič, R., Temeljotov Salaj, A., Toplak, J., Snežič, K. (2009). Obdavčitev statičnega stanja nepremičnin v luči novega davka na nepremičnine. Javna uprava, 2009, letn. 45, št. 4, str. 25-39.

Starček, S., Petrovič, D., Cirman, A. (2017). Analiza in kartografski prikaz dejavnikov vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča. Geodetski vestnik,61 (4), str. 582 –613.

Ustava Socialistične RS (1974). (Uradni list SRS, št. 6/74)

Ustava RS (1991). (Uradni list RS, št. 33/91-I, 42/97 – UZS68, 66/00 – UZ80, 24/03 – UZ3a, 47, 68, 69/04 – UZ14, 69/04 – UZ43, 69/04 – UZ50, 68/06 – UZ121,140,143, 47/13 – UZ148, 47/13 – UZ90,97,99 in 75/16 – UZ70a in 92/21 – UZ62a

Ustavno sodišče RS ( 2000). Odločba US RS U-I-39/97. Uradni list RS, št. 1/2000.

Ustavno sodišče RS (2001). Odločba US RS U-I-355/98-15. Uradni list RS, št. 28/01

Ustavno sodišče RS (2014). Odločba US RS U-I-313/13. Uradni list RS, št. 22/14.

Ustavno sodišče RS (2020). Odločba U-I-11/16-29. Uradni list RS, št. 157/20.

Vlada RS (2018), Akcijski načrt izvedbe Strategije razvoja javne uprave 2015–2020 za leti 2018 in 2019, Dostopno na: https://nio.gov.si/nio/asset/akcijski+nacrt+izvedbe+strategije+razvoja+javne+uprave+2015 2020+za+leti+2018+in+2019

Vrečič A,. (2009). Posebnosti in pomanjkljivosti nadomestila za uporabo stavbnega zemljišča v Republiki Sloveniji. Magistrsko delo. Nova Gorica: Evropska pravna fakulteta v Novi Gorici.

Zakon o davčnem postopku (2011). (Uradni list RS, št. 13/11 – uradno prečiščeno besedilo, 32/12, 94/12, 101/13 – ZDavNepr, 111/13, 22/14 – odl. US, 25/14 – ZFU, 40/14 – ZIN-B, 90/14, 91/15, 63/16, 69/17, 13/18 – ZJF-H, 36/19, 66/19, 145/20 – odl. US in 203/20 – ZIUPOPDVE)

Zakon o davku na nepremičnine (2013). (Uradni list RS, št. 101/13 in 22/14 – odl. US)

Zakon o graditvi objektov (2004). (Uradni list RS, št. 102/04 – uradno prečiščeno besedilo, 14/05 – popr., 92/05 – ZJC-B, 93/05 – ZVMS, 111/05 – odl. US, 126/07, 108/09, 61/10 – ZRud-1, 20/11 – odl. US, 57/12, 101/13 – ZDavNepr, 110/13, 22/14 – odl. US, 19/15, 61/17 – GZ in 66/17 – odl. US)

Zakon o izvrševanju proračunov RS za leti 2020 in 2021 (2019). (Uradni list RS, št. 75/19, 61/20 – ZDLGPE, 133/20 in 174/20 – ZIPRS2122)

Zakon o katastru nepremičnin (2021). (Uradni list RS, št. 54/21)

Zakon o lokalni samoupravi (2007). (Uradni list RS, št. 94/07 – uradno prečiščeno besedilo, 76/08, 79/09, 51/10, 40/12 – ZUJF, 14/15 – ZUUJFO, 11/18 – ZSPDSLS-1, 30/18, 61/20 – ZIUZEOP-A in 80/20 – ZIUOOPE)

Zakon o množičnem vrednotenju nepremičnin (2017). (Uradni list RS, št. 77/17, 33/19 in 66/19

Zakon o prispevku za uporabo mestnega zemljišča (1966). (Uradni list SRS, 42/66)

Zakon o stavbnih zemljiščih (1997). (Uradni list RS, št. 44/97, 67/02 – ZV-1, 110/02 – ZUreP-1 in 110/02 – ZGO-1)

Zakon o stavbnih zemljiščih (1984) . (Uradni list SRS, št. 18/84, 32/85, 33/89, RS, št. 24/92 – Odl. US, 29/95 – ZPDF, 44/97 – ZSZ, 27/98 - Odl.US: U-I-83/96, 120/06 - Odl. US: U-I-286/04-46 in 21/07 – Odl. US: U-I-218/05-7).

Zakon o Ustavnem sodišču RS (2007). (Uradni list RS, št. 64/07 – uradno prečiščeno besedilo, 109/12, 23/20 in 92/21)

# Current legislation as leverage for implementing the legality of public roads

**Irena Karčnik**

Skupna občinska uprava občin Trzin, Komenda, Lukovica,
Mengeš, Moravče, Vodice, Slovenia
irena.karcnik@gmail.com

**Bojan Grum**

European Faculty of Law, New University, Slovenia
bojan.grum@epf.nova-uni.si

## Abstract

The primary objective of this research is investigating the current legislation of public roads and its leverage for the implementation of legality and to aid local municipalities in the administration of public roads. The research topic is addressing the discrepancies between the legal definition of public road and their actual status. Therefore, we present a theoretical and practical foundation in the administration of public roads infrastructure. Legal regulations regarding public roads will be analyzed as they can be one of the reasons for the above mentioned discrepancies. As stated before, the main research objective is to evaluate the differences between theoretical, e.g. legal code assessment, and practical, e.g. incoherent regulations or failure to comply with regulations, point of view and their consequences. A key missing piece in our current knowledge is understanding of the direct and indirect consequences of de facto status on landowners and local municipality management. The logical next step is developing suitable recommendations to resolve the current situation in both practical and theoretical levels in order to create necessary conditions for the public road to serve their primary focus being safe and obstacle free traffic.

Keywords: public roads, land acquisition, expropriation, economic balance.

# Veljavna zakonodaja kot vzvod za urejanje stvarnopravnega stanja javnih cest


## Povzetek

Prvenstveni predmet raziskave je odgovoriti na vprašanje ali je trenutno veljavna zakonodaja s področja javnih cest dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest ter v pomoč upravljavcem pri administrativnemu in funkcionalnemu urejanju javnih cest. Tematika raziskave izhaja iz razkoraka med zakonsko opredeljenim pojmom javne ceste ter dejanskim stanjem na področju cest. V ta namen v članku predstavljamo teoretična izhodišča in prakso na področju urejanja javne cestne infrastrukture.

Z namenom poglobljene raziskave vzrokov za dejansko stanje, temeljna raziskava podaja analizo zakonskih podlag in analizo dejanskega stanja na tem področju. Namen raziskave je tako s teoretičnega stališča, v smislu pregleda in kritične ocene veljavne zakonodaje s področja urejanja javnih cest, kot s praktičnega stališča, z vidika posledic nezadostne definiranosti in nespoštovanja predpisov, ovrednotiti in predvideti posledice, ki so rezultat trenutnega stanja na področju pravnega položaja javnih cest. Namen je torej podati temeljna izhodišča, ki bi vodila v čim bolj verodostojno oceno vpliva dejanskega stanja na vpletene subjekte, upravljavce javnih cest in lastnike zemljišč ob javnih cestah. Izhodišča bodo osnova za pripravo podlag za učinkovitejše reševanja problematike ter vzpostavitev zakonitega stanja na področju stvarnopravnega stanja javnih cest, s končnim namenom zagotoviti varen in neoviran cestni promet.



Ključne besede: javne ceste, razlastitev, razlastitev, ekonomičnost


## Uvod

Javne ceste ter stvarne pravice na njih ureja ZCes-1, ki določa, da je javna cesta cesta, ki jo država ali občina, v skladu z merili za kategorizacijo javnih cest, razglasi za javno cesto določene kategorije in jo lahko vsak prosto uporablja na način in pod pogoji, določenimi z zakonom in drugimi predpisi. Javne ceste so kategorizirane kot državne ali občinske ceste. Državne ceste so v lasti Republike Slovenije, občinske ceste v lasti občin. Javne ceste so prometne površine, ki so splošnega pomena za promet in jih lahko vsak prosto uporablja na način in pod pogoji, določenimi s predpisi, ki urejajo ceste, in pravili cestnega prometa. Zaradi pomena javnih cest ZCes-1 natančno določa načine pridobitve zemljišč, merila za kategorizacijo, način in pogoji gradnje, režim upravljanja in vzdrževanja, uporabe, omejitve in prepovedi, natančno so opredeljene tudi obveze in dolžnosti lastnika oziroma upravljavca javnih cest, pogoje gradnje in investiranja in nivo vzdrževanja javnih cest ter način izvajanja gospodarske javne službe rednega vzdrževanja državnih cest. Da pa bi lastnik oziroma upravljavec navedene pogoje lahko izpolnjevala in bi javne ceste resnično lahko služile splošni uporabi vseh, mora biti lastniku oziroma upravljavcu javnih cest dana izključna pravica razpolaganja z nepremičninami na katerih javne

ceste so. Zato ZCes-1 predpisuje, da imajo javne ceste status javnega dobra in so izven pravnega prometa. Na njih je sicer mogoče pridobiti omejene lastninske pravice, vendar pa zgolj iz razlogov, ki služijo javnemu interesu, povezanemu z osnovnim namenom javnega cestnega omrežja (Karčnik, I., Grum, B., Dežman, A. 2017).

Kljub tako, zakonsko jasno, urejenemu področju, pa situacija v praksi ni vedno taka. Na terenu ter skozi prej navedeno domačo sodno prakso, smo priča številnim težavam izhajajočim prav iz neurejenih stvarnopravnih razmerij. Tematika raziskave izhaja iz izkazanega razkoraka med zakonsko opredeljenim pojmom javne ceste ter dejanskim stanjem na področju javnih cest, s katerim se vsakodnevno srečujemo na terenu.

## Teoretična raziskovalna izhodišča

Analiza zakonskih podlag, presek čez domačo pravno prakso na tem področju ter primerjava s tujimi izkušnjami, opredelitev pojma javnega dobra ter področja ustavno zagotovljene pravice do zasebne lastnine ter pravno še vzdržnega omejevanja te pravice na račun javnega interesa, je bila predstavila že v predhodno objavljenem članku avtorice (Karčnik, I., Grum, B., Dežman, A. 2017).

Če na kratko povzamemo je bilo ugotovljeno, da stvarnopravni položaj cest, pojem in status javnih cest in stvarne pravice na javni cesti, določa ZCes-1. Javne ceste so prometne površine, ki so splošnega pomena za promet in jih lahko vsak prosto uporablja na način in pod pogoji, določenimi s predpisi, ki urejajo ceste, in pravili cestnega prometa (ZJC, prvi odstavek 3. člena). Javne ceste so javno dobro in so izven pravnega prometa. Na njih ni mogoče pridobiti lastninske pravice s priposestvovanjem ali drugih stvarnih pravic (ZJC, drugi odstavek 3. člena). Ne glede na določbo prejšnjega odstavka je na zemljiščih cestnega sveta mogoče pridobiti stvarno služnost na podlagi pravnega posla za gradnjo objektov gospodarske javne infrastrukture in priključkov nanjo ter vodov, ki predstavljajo minimalno komunalno oskrbo stavb, pod pogoji, določenimi s predpisi, ki urejajo ceste, in predpisi, ki urejajo ravnanje s stvarnim premoženjem države, pokrajin in občin (ZJC, tretji odstavek 3. člena). Je pa mogoče na zemljiščih cestnega sveta, pod predpisanimi pogoji, ustanoviti stvarno služnost (ZJC, četrti odstavek 3. člena) oziroma stavbno pravico na servisnih površinah javnih cest. Na zemljiščih, objektih in napravah za opravljanje dejavnosti vzdrževanja avtocest in hitrih cest ali za opravljanje spremljajočih dejavnosti je mogoče pridobiti lastninsko pravico pod pogoji, ki jih določa zakon (ZJC, peti odstavek 3. člena). Na prometnih površinah zunaj cestišča javne ceste in na površinah ob njem, ki so določene za opravljanje dejavnosti, namenjenih udeležencem v prometu (v nadaljnjem besedilu: spremljajoče dejavnosti), je mogoče za njihovo opravljanje pridobiti posebno pravico uporabe (ZJC, deveti odstavek 3. člena). Ne glede na določbo drugega odstavka tega člena se lahko površine v cestnem svetu, katerih raba je namenjena za spremljajoče dejavnosti, ter površine, ki niso prometne površine, obremenijo s stvarnimi pravicami ali dajo v najem skladno s predpisi, ki urejajo ravnanje s stvarnim premoženjem države, pokrajin in občin (ZJC, deseti odstavek 3. člena).

Javne ceste so državne in občinske ceste (ZJC, prvi odstavek 39. člena). Državne ceste so v lasti Republike Slovenije, občinske ceste pa v lasti občin (ZJC, drugi odstavek 39. člena). Merila za kategorizacijo javnih cest določi vlada (ZJC, tretji odstavek 39. člena). Meja ceste se določi na podlagi prostorskega akta države oziroma občine, na podlagi načrta parcelacije iz sklepa o ugotovitvi javne korist (v nadaljnjem besedilu: parcelacijski akt) ali po zunanjem robu cestnega sveta (ZJC, prvi odstavek 13. člena). Lastniki zemljišč ob javni cesti morajo dopustiti vse posege, ki so nujno potrebni za nemoteno uporabo javne ceste (ZJC, prvi odstavek 19. člena). V ta namen se lahko lastninska pravica na sosednjih nepremičninah začasno ali trajno obremeni s služnostjo v javno korist (ZJC, drugi odstavek 19. člena), za kar lastniku služeče nepremičnine pripada odškodnina (ZJC, tretji odstavek 19. člena). Javne ceste se lahko uporabljajo le za cestni promet, za druge namene pa samo v primerih ter na način in pod pogoji, določenimi s predpisi, ki urejajo javne ceste (ZJC, prvi odstavek 4. člena). Tudi za izvajanje del zunaj varovalnega pasu javne ceste, ki bi lahko povzročila nestabilnost cestnega telesa, mora investitor pridobiti soglasje upravljavca javne ceste (ZJC, prvi odstavek 26. člena).

Javne ceste morajo biti vzdrževane tako, da jih lahko ob upoštevanju prometnih pravil in vremenskih pogojev za odvijanje prometa varno uporabljajo vsi uporabniki cest, ki so jim namenjene (ZJC, prvi odstavek 15. člena). Redno vzdrževanje javnih cest je obvezna gospodarska javna služba, ki obsega vzdrževalna dela za ohranjanje javnih cest v stanju, ki zagotavlja varnost in prevoznost javnih cest, nadzor nad stanjem javnih cest in cestnega sveta ter vzpostavitev prevoznosti cest ob naravnih in drugih nesrečah (v nadaljnjem besedilu: redno vzdrževanje javnih cest) (ZJC, prvi odstavek 16. člena).

Gradnja in vzdrževanje javnih cest je v javnem interesu (ZJC, prvi odstavek 9. člena). Za gradnjo javne ceste se lahko pravni ali fizični osebi podeli koncesija (ZJC, prvi odstavek 10. člena). Zaradi gradnje javne ceste se lahko v skladu z zakonom lastninska pravica na nepremičnini odvzame ali obremeni (ZJC, prvi odstavek 12. člena. Postopke podrobno ureja prostorska zakonodaja v ZureP-2.

Zagotavljanje zemljišč in pravic na njih za prostorski razvoj, tudi predvideni razvoj prometne infrastrukture, se izvaja na podlagi načrta preskrbe in upravljanja z zemljišči, (ZureP-2, odstavek 188. člen). V ta namen zakon predvideva predkupno pravico države in občine (ZureP-2, 190. člen) in predvideva možnost razlastitev in omejitve lastninske pravice (ZureP-2, 192. člen). Razlastitveni upravičenec je država ali občina. Razlastitveni zavezanec je fizična ali pravna oseba, ki ima v lasti nepremičnino, ki je predmet razlastitve. Razlastitveni zavezanec je lahko tudi oseba javnega prava, razen države (ZureP-2, 195. člen).

Ponudbo za odkup pripravi razlastitveni upravičenec ali investitor izvedbe načrtovane prostorske ureditve na podlagi ocenjene vrednosti nepremičnine ter ocenjenih nadomestil za škodo in drugih stroškov v skladu z določbami tega zakona, ki urejajo odškodnino za razlastitev. Za namen priprave ponudbe za odkup nepremičnine ima razlastitveni upravičenec ali investitor izvedbe načrtovane prostorske ureditve pravico pridobiti podatke iz uradnih evidenc. Kadar je za ocenjevanje vrednosti nepremičnine treba pridobiti podatke, ki se ne vodijo v uradnih evidencah, imata cenilec, razlastitveni upravičenec in investitor izvedbe

načrtovane prostorske ureditve za ta namen pravico pridobiti podatke neposredno od lastnika nepremičnine ali od imetnika stvarnih ter obligacijskih pravic na njej (ZureP-2, 197. člen). Če razlastitveni upravičenec ali investitor izvedbe načrtovane prostorske ureditve z lastnikom nepremičnine ne uspe skleniti pogodbe o prodaji nepremičnine, sme razlastitveni upravičenec vložiti zahtevo za razlastitev, s čimer se začne razlastitveni postopek (ZureP-2, 199. člen).

Upravni organ odloči o razlastitvi z odločbo po izvedenem ugotovitvenem postopku (ZureP-2, 203. člen). Razlastitveni upravičenec pridobi lastninsko pravico na razlaščenih nepremičninah s pravnomočno odločbo o razlastitvi (ZureP-2, 204. člen). Če razlastitveni upravičenec v določenem roku ne zagotovi začetka gradnje objekta ali objektov, zaradi katerih je bila razlastitev predlagana, lahko razlaščenec zahteva vrnitev nepremičnine (ZureP-2, 212. člen). Odločba o razlastitvi se na zahtevo razlaščenca odpravi, če razlastitveni upravičenec v določenem roku ne plača ali položi odškodnine oziroma ne zagotovi nadomestne (ZureP-2, 215. člen). Zakon definira tudi postopke glede drugih stvarnim in obligacijskim pravicam na nepremičninah, podvrženim postopku razlastitve, to so vprašanja glede stvarnih pravic na nepremičnini in pravic iz najemne oziroma zakupne pogodbe (ZureP-2, 209. člen).

Zakon ureja tudi postopek določitve odškodnine oziroma nadomestnih nepremičnin. Lastniku pripada za razlaščeno nepremičnino ustrezna odškodnina ali enakovredna nadomestna nepremičnina. Odškodnina obsega vrednost razlaščenih nepremičnin, nadomestila za škodo in druge stroške, povezane z razlastitvijo. Predpisana nadomestila za škodo so: nadomestilo za škodo za spremljajoče objekte na nepremičnini; nadomestilo za škodo zaradi uničenja ali zmanjšanja obstoječega pridelka na kmetijskih oziroma gozdnih zemljiščih; nadomestilo za škodo zaradi zmanjšanja prihodkov iz naslova poslovanja poslovnega subjekta na nepremičnini in nadomestilo za drugo škodo, ki je povezana s poslovanjem poslovnega subjekta, za tiste dejavnosti, ki so ustrezno priglašene pristojni finančni upravi in če so pridobljena vsa potrebna dovoljenja za opravljanje teh dejavnosti poslovnega subjekta. Upravičenci do nadomestila za škodo so lastniki nepremičnin oziroma nosilci pravic na nepremičninah. Odškodnina se določi z uporabo metodologije ocenjevanja vrednosti nepremičnin, škod na njih in drugih stroškov za namen umeščanja prostorskih ureditev državnega pomena. Odškodnino in upravičene stroške, nastale v zvezi z razlastitvenim postopkom, plača razlastitveni upravičenec (ZureP-2, 206. člen).

Po pravnomočnosti odločbe o razlastitvi upravni organ pozove razlastitvenega upravičenca in razlaščenca, da skleneta sporazum o odškodnini oziroma nadomestilu. Če do sporazuma o odškodnini oziroma nadomestilu ne pride, lahko razlastitveni upravičenec ali razlaščenec vloži predlog za odmero odškodnine oziroma določitev nadomestila v nepravdnem postopku na pristojnem sodišču (ZureP-2, 207. člen).

Določanje odškodnin v razlastitvenih postopkih regulira zakon. Za prehodno obdobje do zakonske ureditve metodologije ocenjevanja vrednosti nepremičnin, škod na njih in drugih stroškov za namen umeščanja prostorskih ureditev državnega pomena in izvajalcev tega ocenjevanja, ZUreP-2 predvideva, da izvajajo

ocenjevanje odškodnin cenilci, ki so pooblaščeni ocenjevalci vrednosti nepremičnin, pooblaščeni ocenjevalci vrednost podjetij, pooblaščeni ocenjevalci vrednosti strojev in opreme, imenovani po predpisih, ki urejajo revidiranje in ocenjevanje vrednosti, ter sodni cenilci nepremičnin, sodni cenilci kmetijske, gozdarske, gradbene, elektroinženirske, rudarske stroke in strojništva, imenovani po predpisih, ki urejajo delovanje sodišč. Zakon določa, da morajo cenilci upoštevati: podatke o nepremičninah in o njihovi posplošeni vrednosti, ki se v skladu s predpisi o evidentiranju nepremičnin in predpisi o množičnem vrednotenju nepremičnin vodijo v javnih evidencah, ter druge podatke, ki jih pridobijo od lastnikov nepremičnin oziroma nosilcev pravic na njih ter skladnost navedenih podatkov s primerljivimi nepremičninami, stanje nepremičnin v naravi, namensko rabo nepremičnin pred uveljavitvijo prostorskega akta, ki je podlaga za razlastitev, kakor tudi dejansko stanje nepremičnine na dan uvedbe razlastitvenega postopka in mednarodne standarde ocenjevanja vrednosti. Pri ocenjevanju vrednosti se upoštevajo podatki o nepremičninah, kot se vodijo v javnih evidencah v skladu s predpisi, ki urejajo evidentiranje nepremičnin (ZureP-2, 295. člen).

Če povzamemo, morajo biti upravljalci javne infrastrukture po trenutno veljavni zakonodaji, absolutni stvarnopravni lastniki zemljiških parcel po katerih teče javna infrastruktura. Da to dosežejo morajo predhodno skleniti pravni posel prodaje in nakupa ter zanj plačati celotno kupnino oziroma morajo izpeljati predpisane postopke razlastitve ter za razlaščene nepremičnine plačati ustrezne odškodnine. V obeh primerih, vsaj za upravljavce javnih cest, to pomeni izredno veliko finančno breme.

Razkorak med zakonodajo in prakso je razviden iz številnih objavljenih sodb sodišč. Ustavno sodišče Republike Slovenije občine vedno znova opozarja, da so odloki o kategorizaciji cest, ki potekajo po zemljiščih v lasti fizičnih ali pravnih oseb civilnega prava v neskladju z Ustavo, ter so dolžne ugotovljeno stanje odpraviti tako, da z lastniki dotičnih nepremičnin sklenejo pravne posle za pridobitev zemljišč ali začnejo postopke razlastitve ali skladno z zakonom izpeljejo postopke za ukinitev takih javnih cest (USRS Odločba U-I-224/00, USRS Odločba U-I-21/04, USRS Odločba U-I-240/05, USRS Odločba U-I-335/05, USRS Odločba U-I-18/06, USRS Odločba U-I-304/06). V ta namen sedanji zakon o cestah ZCes-1 ohranja v veljavi člen prejšnjega zakona o javnih cestah ZJC-B, ki je s spremembami in dopolnitvami iz leta 2005 v 19. členu uvedel poseben razlastitveni postopek za javne ceste, ki so ob uveljavitvi zakona že obstajale in so potekale po nepremičninah, ki so bile v lasti fizičnih ali pravnih oseb civilnega prava. Kot Krisper Kramberger (2011, str.1414) navaja: »Postopek se je, od že prej zapisanega v Zakonu o urejanju prostora (ZUreP-1), razlikoval v tem, da je poenostavil ugotovitev javne koristi ter da razlastitveni upravičenec pridobi lastninsko pravico že z dokončnostjo razlastitvene odločbe.«. Da je problematika resnično pereča, daje vedeti tudi odločanje ustavnega sodišča, ki z izrazitim stopnjevanjem svojih sankcij v obdobju zadnjih let, vedno bolj jasno kaže na nestrinjanje sodne veje z neodzivnostjo upravnih, predvsem občinskih, organov (USRS Odločba U-I-240/05, USRS Odločba U-I-335/05).

Kakor je razvidno tudi iz tujih virov, se s podobno problematiko in težavami srečujejo tudi v drugih okoljih. Zelo slične razmere in posledične težave našim lahko

razberemo iz poljskih raziskav Źróbek in Źróbek (2008), Belej in Walacik (2008), Kucharska, 2008, str. 91), ameriške raziskave Antonia (2007) ter obsežne angleške raziskave objavljene v International Review of Land Supply and Planning System (2013). Vsi našteti avtorji so se v svojih raziskavah ukvarjali z iskanjem dobre prakse in učinkovitih metod ob čim nižjemu konfliktu z vpletenimi strankami ob odvzemu zasebnih zemljišč za potrebe javnega interesa ter s tem olajšanju pridobitve zemljišč (Karčnik, I., Grum, B., Dežman, A. 2017).

Glede na navedena izhodišča in raziskano prakso se postavlja ključno vprašanje ali je trenutno veljavna zakonodaja s področja javnih cest dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest ter v pomoč upravljavcem pri administrativnemu in funkcionalnemu urejanju javnih cest.

## Praktična raziskovalna izhodišča

Z namenom odgovora na zastavljeno vprašanje sta bila zastavljena dva specifična znanstvena problema:

- Ali imajo upravljalci javnih cest in lastniki zemljiških parcel cestnega sveta javnih cestah po mnenju upravljavcev in lastnikov parcel cestnega sveta ustrezne zakonske možnosti za ureditev stvarnopravnega stanja cest?
- Kako upravljavci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest zaznavajo kot pomemben (nepomemben) dejavnik v upravljanju? Ali imajo upravljalci javnih cest izdelane strategije reševanja obstoječega stanja?

ter hipoteza:

- H: Veljavna zakonodaja s področja javnih cest ni dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest, niti ni v pomoč pri administrativnemu in funkcionalnemu urejanju javnih cest, zato se upravljalci cest ne ukvarjajo s sistematičnim odpravljanjem razlik med zakonsko predpisanim in obstoječim stanjem. Upravljalci občinskih cest z možnostmi, ki jih ponuja trenutna ureditev pri urejanju stvarnih pravic za obstoječe javne ceste, niso zadovoljni.

Učinkovitost zakonodajnih mehanizmov se vsekakor odraža v pozitivnem trendu urejanja stanja v praksi. Stanje zadev na terenu je mogoče preverjati preko analitičnih metod primerjave pridobljenih podatkov, kot tudi analizo sodne prakse s tega področja. Analize pridobljenih odgovorov o posestnem stanju občinskih javnih cest v slovenskih občin je omogočila, da smo razbrali trend urejenosti stvarnopravnega stanja javnih občinskih cest v obdobju samostojne države. Ugotavljali smo ali se postopki urejanja stvarnih pravic za občinske ceste sploh izvajajo, ali se v občinah problematike sploh zavedajo ter kam na lestvici občinskih prioritet jo uvrščajo. Ugotavljali smo kakšno je zadovoljstvo upravljalcev cest z področnimi predpisi. S potrditvijo ali ovrženjem zastavljene hipoteze smo nameravali odgovoriti tudi na oba zastavljena znanstveno – raziskovalna problema.

## Raziskovalni načrt

Za pridobitev odgovorov na zastavljena znanstveno – raziskovalna problema ter postavljeno hipotezo je bila izvedena analiza stanja s pomočjo anketiranja. Anketni

vprašalnik je bil razdeljen na vprašanja s katerimi smo anketirali upravljalce cest ter na nabor vprašanj s katerimi smo anketirali širšo javnost.

Vprašalnik, ki smo poslali v izpolnitev anketiranim upravljavcem občinskih cest, je obsegal štiri tematske sklope, uvodnega in tri vsebinske dele, skupno petinštirideset (45) vprašanj. Z uvodnim delom vprašalnika v prvem sklopu, kjer smo se seznanili z osnovnimi podatki o anketiranem upravljalcu občinskih cest, to je občinah in njihovih upravah, smo zbrali podatke o občinah, ki so v anketi sodelovale, ali spadajo med mestne občine, koliko časa je od njihove ustanovitve, koliko prebivalcev je v njihovi občini, koliko zaposlenih je v njihovi upravi ter podatek o delovnem mestu konkretnega anketiranca občinske uprave. Z odgovori na drugi sklop oziroma prvi vsebinski del vprašalnika za upravljavce občinskih cest, to so vprašanja od 11 do 30, smo dobili podatke o trenutnem stanju in morebitnih postopkih urejanja stvarnopravnih razmerij na področju kategoriziranih občinskih cest ter odgovor na drugi zastavljeni znanstveno – raziskovalni problem. V tretjem sklopu oziroma drugem vsebinskem delu vprašalnika za upravljavce občinskih cest, to so vprašanja od 31 do 35, smo upravljavce spraševali o njihovem mnenju in izkušnjah glede postopkov z raziskovanega področja predpisanih v sedanji zakonodaji in dobili odgovor na prvi zastavljeni znanstveno – raziskovalni problem Z obema deloma smo dobili podatke za potrditev oziroma ovrženje hipoteze.

Vprašalnik za občane je bil sestavljen iz uvodnega in treh vsebinskih delov, skupno štirideset (40) vprašanj. V uvodnem delu (sklop 1) smo dobili demografske podatke o anketirancih. Prvi vsebinski del (sklop 2) se je nanašal na splošna pričakovanja občanov glede cestne infrastrukture, drugi (sklop 3) na njihov kritični odnos do obstoječega stanja na tem področju. S prvim vsebinskim delom vprašalnika, sklopom dva, smo želeli preveriti doumevanje ustreznosti zakonsko varovane meje med zasebnim in javnim interesom. V drugem vsebinskem delu, sklop tri, smo želeli pridobiti podatek o poznavanju veljavne zakonodaje in s tem zavedanju občanov o svojih ustavno zagotovljenih pravicah. Z določenimi vprašanji teh dveh sklopov, to so vprašanja 13, 14, 19 in 20, smo dobili odziv občanov na prvi znanstveno-raziskovalni problem ter zastavljeno hipotezo. Z izvirno raziskavo smo na eni strani pridobili podatke o stališčih upravljavcev cest do veljavne zakonodaje, posledičnih vplivih na upravljanje, njihovih izkušnjah ter mnenjih in predlogih za spremembe in izboljšave na raziskovanem področju ter na drugi strani podatke o stališčih tistih, ki so v zadevo vpleteni z druge strani, to je o občanih kot lastnikih zemljišč ter njihovem odnosu do raziskovanega področja, o njihovi pripravljenosti odreči se svojemu lastnemu interesu na račun javnega, o njihovi pripravljenosti sodelovanja v postopkih urejanja na raziskovanem področju, o njihovih predlogih za spremembe, o finančnih posledicah ugotovljenega stanja za občane in lastnike zemljišč, o pričakovanem nivoju varovanja zasebne pravice proti javnemu interesu, o številu uvedenih postopkov za ureditev trenutnega stanja in o rezultatih v morebitnih sodnih postopkih ter o izkušnjah občanov z upravljavcih cest.

Pri anketiranju upravljavcev občinskih cest, to je občin, je bil anketni vprašalnih poslan vsem občinam. Odziv občin je bil zelo dober, saj smo prejeli odgovore iz skoraj tretjine vseh občin. Pri anketiranju splošne javnosti smo se soočili s precejšnjimi težavami, saj smo, glede na razdeljene ankete, prejeli manjši delež odgovorov.

Za uresničitev opisanega cilja smo se poslužili preizkušenih metodoloških pristopov (Nahtigal, Grum, 2015, str. 183), ki se v grobem sestojijo iz kvalitativne in kvantitativne raziskave, analitičnega in interpretativnega dela ter končnega sintetičnega dela raziskave.

Kvalitativni del raziskave smo pričeli s pregledom obstoječih raziskav, s čimer smo sploh dobili idejo za temo naloge. S pregledom sorodnih raziskav v nadaljevanju smo dobili osnovo za natančnejšo opredelitev problema in predmeta ter namena in cilja raziskave ter pričakovanj glede rezultatov raziskave. Sledil je pregled področne zakonodaje ter obstoječe ureditve in stanja na raziskovanem področju. Meta analiza te faze je zajemala obsežen pregled znanstvene in strokovne literature s poudarkom na znanstvenih prispevkih z obravnavanega raziskovalnega področja. Na ta način je bila zbrana tudi široka paleta sekundarnih podatkov. V tej fazi smo kombinirali kritično predstavitev, na eni strani obstoječega stanja urejenosti stvarnopravnih razmerij zemljišč, po katerih tečejo javne ceste, veljavnih predpisov, ki področje urejajo ter postopkov in odločitev pristojnih sodišč ter na drugi strani teoretičnih spoznanj tako domačih kot tujih avtorjev in neodvisnem kritičnem razmišljanju avtorice. V zvezi z navedenim je bila v največji meri uporabljena kritično-analitična, deskriptivno-analitična, zgodovinska ter teleološka razlaga. Zgodovinska metoda nam je omogočila proučevanje obstoječega stanja na raziskovanem področju ter zbiranje, kritično analiziranje in proučevanje pridobljenih virov in dokumentov. Ta metoda se osredotoča na osvetlitev dosedanjih trendov in načinov pridobitve zasebnih zemljišč za potrebe širše družbe v javnem interesu.

Na podlagi tako zbranih podatkov in podlag so bila postavljena znanstveno-raziskovalna vprašanja ter hipoteze raziskave, s čemer smo postavili okvirje, obseg, smer in cilje raziskave.

Sledila je določitev raziskovalnega načrta in metod raziskovalnega postopka Za osrednjo metodo kvantitativnega empiričnega dela raziskave je bila izbrana metoda pregleda, ki temelji na vprašalniku in anketiranju. Anketiranje širše populacije in kasnejša analiza pridobljenih rezultatov je učinkovita metoda za poglobljeno razumevanje stanja raziskovanega problema v relativno kratkem času (Basnet, 2012, str. 15). Za ciljni skupini smo določili upravljavce občinskih cest, to so občine, ter uporabnike občinskih cest, to so občani oziroma splošna javnost.

Anketna vprašalnika smo sestavili na podlagi zbranih sekundarnih podatkov ter pregledanih virov. Od treh glavnih tipov vprašanj, to so odprta vprašanja (open ended), vprašanja z večjo izbiro odgovorov (multi choise) in vprašanja z odgovori po vrsti (rank ordering) (Keats, 2000), smo v oblikovanih vprašalnikih uporabili slednja dva tipa vprašanj.

Po sestavi in oblikovanju anketnih vprašalnikov, smo le te najprej testirali pri nekaj izbranih anketirancih, katerim smo anketni vprašalnik poslali v izpolnitev, nato pa z njimi opravili še poglobljeni razgovor, intervju. Na podlagi tako zbranih mnenj smo anketna vprašalnika prilagodili. Za tako korigirana vprašalnika smo v naslednji fazi ugotavljali ustreznost metrijskih karakteristik vprašalnikov. V ta namen smo izvedli pilotsko raziskavo na ustreznem, manjšem vzorcu. Zanesljivost vprašalnikov smo preverili s Cronbachovim koeficientom alfa. Po tako izvedenem testiranju

zanesljivosti v pilotni študiji smo ugotovili, da sta vprašalnika primerna za nadaljnjo uporabo in aplikacijo v obeh anketiranih skupinah.

Po testiranju pripravljenih vprašalnikov, smo vprašalnika razdelili med izbrani anketirani skupini, občine in občane ter prešli na kvantitativni del raziskave. Anketiranje je potekalo neposredno in preko interneta od meseca maja 2018 do meseca februarja 2021. Po prejemu odgovorov smo preverili zanesljivosti vprašalnikov še na celotni količini prejetih odgovorov ter ugotovili da sta se vprašalnika tudi na celotni zbrani količini podatkov izkazala zanesljiva.

V fazi zbiranja podatkov s snemanjem stanja in anketiranjem smo uporabili predvsem deskriptivno ali opisno metodo, pri kateri raziskovalec ne vpliva na potek proučevanih pojavov, temveč jih le opazuje, opisuje, kategorizira, primerja, kvalitativno in kvantitativno analizira, kondenzira, sintetizira ter sklepa na povezave, tudi vzročne, ter pri kateri razvrstitev opazovanih oseb ali pojavov ni odvisna od raziskovalca (Fister, et. al., 2003, str. 14). Različne tehnike zbiranja podatkov, od anketiranja, intervjuvanja, opazovanja do analize tekstov in dokumentov, zagotavljajo višjo objektivnost raziskave (Yin, 2003 v: Basnet, 2012, str. 15). Združevanje kvalitativnih in kvantitativnih metod raziskovanja postaja vse pogosteje uporabljen pristop raziskovanja. Tak pristop presega enostavno zbiranje različnih vrst podatkov in vsebuje koncept združevanja ali mešanja kvalitativnih in kvantitativnih podatkov (Lobe, 2006, Tashakkori, Teddlie, 1998, Brewer, Hunter, 2003, Bryman, 2000, Brennenova, 1992, Patton, 1990, De Leeuw, 2005, v: Grum, Temeljotov Salaj, 2011, str. 101). Pri analizi zbranih podatkov o osnovnih značilnostih in opisu udeležencev anketiranja smo uporabili deskripitvno analizo.

**Metodologija preverjanja postavljene hipoteze raziskave**

Po preverjanju zanesljivosti vprašalnikov na celotni količini prejetih odgovorov smo v nadaljevanju preverili kako so anketiranci odgovarjali na vprašanja, ki so bila specifična za en ali drugi anketni vprašalnik, najprej odgovore za občine, nato za splošno javnost.

Na **1. znanstveno-raziskovalni problem** smo odgovorili s primerjavo podatkov pridobljenih z odgovori na tretji sklop vprašanj, to so vprašanja od 31 do 35 v vprašalniku za upravljavce cest in vprašanja od 21 do 30 v vprašalniku za splošno javnost. Z odgovori na vprašanja za upravljavce cest drugega sklopa od 11 do 30, kjer so evalvirali obstoječe staje v občinah na področju javnih cest, smo odgovorili na **2. znanstveno-raziskovalni problem**. Za preverjanje odgovorov anketirancev in s tem odgovarjanje na zastavljena znanstveno- raziskovalne probleme in hipoteze smo se poslužili več statističnih metod.

Pri vprašanjih z nominalnimi spremenljivkami oziroma odgovori, tipa DA ali NE oziroma DA, NE ali NE VEM, ter pri vprašanjih z več možnimi odgovori, smo z uporabo univariantnih analiz in opisne statistike preverili porazdelitev odgovorov med možnostmi. Z računanjem aritmetične sredine smo ugotovili v katero smer se odgovori odklanjajo, z izračunom standardne deviacije smo dobili še podatek o razpršenosti odgovorov okoli aritmetične sredine vzorca. Višja je vrednost standardnega odklona, bolj so enote v vzorcu razpršene in obratno, nižja vrednost

kaže na manjšo razpršenost odgovorov in večjo koncentracijo okoli aritmetične sredine, skratka na večjo stopnjo enotnosti zbranih odgovorov.

Kjer so zastavljeni znanstveno- raziskovalni problemi in hipoteze zahtevali primerjavo odgovorov med dvema skupinama anketirancev, to je med stališči upravljavcev občinskih cest, občin in med uporabniki občinskih cest, občani oz. splošno javnostjo, ali med mestnimi in ostalimi občinami, smo uporabili bivariantne analize variance. Upoštevali smo, da sta primerjani skupin v našem primeru neodvisni. Glede na to smo uporabili t-teste, parametrične pri normalnih porazdelitvah rezultatov in neparametrične v primerih, ko se podatki ne porazdeljujejo normalno (Field, 2013, stran 464). Glede na navedeno je bil prvi korak testiranje normalnosti porazdelitve podatkov.

Kolmogorov-Smirnov in Shapiro-Wilkov test sta testa, ki merita normalnost porazdelitve podatkov. Če testa nista statistično značilna (sig. > 0,05) pomeni, da se porazdelitev vzorca ne razlikuje od običajne porazdelitve, kar pomeni, da se podatki porazdeljujejo normalno. Če pa sta testa statistično značilna (sig. < 0,05) potem se porazdelitev vzorca razlikuje od normalne porazdelitve, kar pomeni, da se naši podatki ne porazdeljujejo normalno (Field, 2013, stran 251).

Glede na zahtevane primerjave skupin smo se v raziskavi srečali z naslednjimi variantami:

- ugotavljanje obstaja statistično značilne povezanosti med neodvisnima vzorcema s ordinalnimi spremenljivkami , ki se ne porazdeljujejo normalno,
- ugotavljanje obstaja statistično značilne povezanosti med neodvisnima vzorcema z nominalnimi spremenljivkami ter
- preverjanje povezanosti med dvema številskima spremenljivkama, pri čemer sta obe spremenljivki intervalnega oz. razmernostnega tipa.

Za neodvisne vzorce, ki se ne porazdeljujejo normalno, smo uporabili Mann-Whitneyev U test, ki je neparametrična različica t-testa (Field, 2013, stran 291). Če je sig. < 0,05, potem test pove, da med preučevanima skupinama obstajajo statistično značilne razlike. Povprečni rangi nam povedo kako se preučevane skupine razlikujejo, skupina z večjimi vrednostmi bo imela večji povprečni rang (Field, 2013, stran 302). Za proučevanje povezanosti med dvema opisnima spremenljivkama, pri čemer ena izmed spremenljivk mora biti nominalnega tipa, smo uporabili Pearsonov hi-kvadrat (Field, 2013, stran 856). Če je sig.<0,05 test pove, da med preučevanima spremenljivkama obstaja statistično značilna povezanost (Field, 2013, stran 877). Za preverjanje povezanosti med dvema številskima spremenljivkama, pri čemer morata biti obe spremenljivki intervalnega oz. razmernostnega tipa, smo uporabili Pearsonov koeficient korelacije (Field, 2013, stran 350). Če je sig. < 0,05 oziroma v nekaterih primerih sig. < 0,01 potem to pomeni, da med preučevanima spremenljivkama obstaja statistično značilna povezanost (Field, 2013, stran 354).

S statistično analizo pridobljenih odgovorov ter interpretacijo le teh v naslednji fazi smo dobili podatke za potrditev oziroma ovrženje postavljenih hipotez ter jih kasneje kvantitetno in kvalitetno obdelali (Fister, et. al., 2003, str. 13). V zaključnem delu je bila uporabljena predvsem sintetična metoda, s pomočjo katere so bile združene

ključne ugotovitve v zvezi z zastavljenimi hipotezami. Poleg sintetične metode sta bili uporabljani še deduktivna in induktivna metoda, tako imenovana inverzna dedukcija (Toš, Hafner-Fink, 1998, v: Nahtigal, Grum, 2015, str. 32).

## Rezultati raziskave

Pri anketiranju upravljavcev občinskih cest, to je občin, je bil anketni vprašalnih poslan vsem občinam. Odziv občin je bil zelo dober, saj smo prejeli odgovore iz skoraj tretjine vseh občin. Število zbranih odgovor kaže, da je tema za občine vsekakor zelo zanimiva oz. aktualna. Anketiranci so bili reprezentativno razporejeni po večinoma vseh občinskih upravah, ki so anketni vprašalnik izpolnile. Glede na navedeno lahko sklepamo, da anketirane občine dajejo dobro sliko celote in iz pridobljenih podatkov lahko sklepamo na splošno stanje v državi.

Pri anketiranju splošne javnosti smo se soočili s precejšnjimi težavami, saj smo, glede na razdeljene ankete, prejeli manjši delež odgovorov. Množičnega posredovanja anketnega vprašalnika dalje pri skupini, ki je vprašalnik prejela v drugem krogu, to je od anketirancev, katerim smo vprašalnik poslali osebno v prvem krogu, nismo uspeli sprožiti oz. le ti na anketo niso odgovorili. Raziskovana tema ni tako obče splošna, kar se je odrazilo tudi v odzivnosti anketirancev. Tako je število zbranih odgovorov občanov relativno majhno. Pri evalvaciji rezultatov je potrebno upoštevati tudi dejstvo, da anketiranci niso bili izbrani naključno iz celotne populacije, pač pa na podlagi osebnih poznanstev in kontaktov. To pomeni, da pridobljeni odgovori statistično sicer ne predstavljajo reprezentativnosti, iz katerih bi se dalo sklepati na celotno populacijo, saj niso bili naključno izbrani med celotnim prebivalstvom Slovenije, so pa bila povabila v prvem krogu poslana dokaj enakomerno v vse dele in regije države. Kljub navedenemu nam tudi pridobljeni podatki s strani občanov dajo zanimivo sliko s tega področja, sploh ko jih postavimo ob bok odgovorom upravljavcev občinskih javnih cest, to je občin.

### Rezultati ankete k prvemu znanstveno-raziskovalnemu problemu

ZRP1: Ali imajo upravljalci javnih cest in lastniki zemljiških parcel ob javnih cestah po njihovem mnenju ustrezne zakonske možnosti za ureditev stvarnopravnega stanja cest?

Tabela 1: Rezultati ankete k prvemu znanstveno-raziskovalnemu problemu

| **Hipoteze / znanstveno-raziskovalni problemi** | **H1 / 1ZRP** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anketna vprašanja** | **Številka Vpr** | | **Občine mestne** | | **Občine druge** | | **Očine skupaj** | | **Občani** | | |
| | **občine** | **občani** | $\bar{X}$ | *s* | $\bar{X}$ | *s* | $\bar{X}$ | *s* | $\bar{X}$ | *s* | **Sig.** |
| Ali je z zakonom predviden in določen postopek urejanja lastništva zemljiških parcel, po katerih tečejo občinske ceste, po vašem mnenju ustrezen? | 31 | 13 | | | | | 2,23 | 1,00 | 2,69 | 1,04 | |
| | | | | | | | $\bar{R}$ =77,69 | | $\bar{R}$ =98,68 | | 2974 (0,005) |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ali je zakonsko varovana meja med zasebnim in javnim interesom, v primeru urejanja lastništva zemljiških parcel po katerih tečejo občinske ceste, po vašem mnenju ustrezno postavljena? | 32 | 14 | | | | | 2,30 | 0,99 | 2,56 | 1,00 | |
| | | | | | | | $\bar{R}$ =82,97 | | $\bar{R}$ =94,95 | | 3365 (0,111) |
| Kakšna odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti je, po vaših izkušnjah, sprejemljiva za lastnike zemljišč? | 33 | 19 | | | | | | | | | 48,826 (0,000) |
| Kakšna odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti je, po vaših izkušnjah, sprejemljiva za občine? | 34 | | | | | | | | | | |
| Kakšna odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti je, po vaših izkušnjah, sprejemljiva za občine / lastnike zemljišč? | 34 / 33 | | | | | | | | | | 27,895 (0,313) |
| Kakšna odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti je, po vaših izkušnjah, sprejemljiva za občine / lastnike zemljišč? | 34 | 19 | | | | | | | | | 16,780 (0,667) |
| Na kakšen način bi morala biti po vašem mnenju določena višina odškodnine za odvzeto zemljišče? | 35 | 20 | - | - | - | -- | | - | - | | 106,341 (0,000) |

***Vprašanje 31 za upravljavce in vprašanje 13 za splošno javnost:*** Glede ustreznosti z zakonom predvidenega in določenega postopka urejanja lastništva zemljiških parcel, po katerih tečejo občinske ceste pridobljeni podatki kažejo, da obe skupini anketirancev smatrata, da niso ustrezni, saj sta povprečji na lestvici od 1 do 5 pri obeh skupinah manj kot 3, pri čemer se rezultati med skupinama statistično razlikujejo in so občani z ureditvijo malo bolj zadovoljni kot občine. Je pa razpršenost odgovorov pri občanih večja, kar pomeni, da so v stališčih manj enotni kot občine.

***Vprašanje 32 za upravljavce in vprašanje 14 za splošno javnost:*** Glede postavljene, zakonsko varovane meje med zasebnim in javnim interesom v primeru urejanja lastništva zemljiških parcel po katerih tečejo občinske ceste pridobljeni podatki kažejo, da obe skupini anketirancev smatrata, da ni ustrezna, saj sta povprečji odgovorov na lestvici od 1 do 5 pri obeh skupinah manj kot 3, pri čemer se rezultati med skupinama statistično ne razlikujejo, so pa občani z ureditvijo malo bolj zadovoljni kot občine. Razpršenost odgovorov je pri občanih večja, kar pomeni, da so v stališčih manj enotni kot občine.

***Vprašanje 33 za upravljavce in vprašanje 19 za splošno javnost:*** Glede sprejemljive odkupne cene za zemljišča kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč pridobljeni podatki kažejo, da v pričakovanjih občanov izrazito izstopa možnost poštena odškodnina (tržna vrednost + javni interes + odškodnina vezana na izpad dohodka, selitvene stroške, ipd), medtem ko občine v

odgovorih, kaj je po njihovem mnenju sprejemljiva odkupna cena za lastnike zemljišč, tangirajo ali k tržni vrednosti zemljišča po namembnosti zemljišča pred umestitvijo infrastrukture v prostor, ali k odstopu s povračilom povezanih stroškov (administrativnih stroškov, stroškov povezanih s selitvijo, razvrednotenjem vrednosti prvotne parcele zaradi parcelacije, ….). Primerjava med mnenji skupin, kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč, po mnenju občin na eni strani in po mnenju občanov na drugi strani, pridobljeni podatki kažejo, da se statistično razlikujejo.

***Vprašanje 34 za upravljavce:*** Glede sprejemljive odkupne cene zemljišč kategoriziranih občinskih cest v zasebni lasti za občine pridobljeni podatki kažejo, da je za občine najbolj sprejemljiva možnost odstopa s povračilom povezanih stroškov (administrativnih stroškov, stroškov povezanih s selitvijo, razvrednotenjem vrednosti prvotne parcele zaradi parcelacije, ….) in to kljub temu, da po njihovih izkušnjah občani v največjem deležu pričakujejo tržno vrednost zemljišča po namembnosti zemljišča pred umestitvijo infrastrukture v prostor.

Primerjava med mnenji občin kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za občine in kaj je po mnenju občin sprejemljiva odkupno za lastnike zemljišč (primerjava vprašanja 33 in vprašanja 34 za upravljavce) pridobljeni podatki kažejo, da se statistično razlikujejo.

Primerjava med mnenji občin kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti, za občine na eni strani in za lastnike zemljišč po mnenju občanov na drugi strani (primerjava vprašanja 34 za upravljavce in vprašanja 19 za splošno javnost), pridobljeni podatki kažejo, da se statistično razlikujejo.

***Vprašanje 35 za upravljavce in vprašanje 20 za splošno javnost:*** Glede najprimernejšega načina za določanje vrednosti zemljišč, potrebnih za zagotovitev javnega cestnega omrežja pridobljeni podatki kažejo, da se odgovori skupin anketirancev statistično razlikujejo. Odgovori občin tangirajo določanju cene s strani države enotno za istovrstne kategorije zemljišč, enotno za območje cele države ali k možnosti, da občina samostojno določi enotno ceno denarne odškodnine ali odkupa za istovrstne kategorije zemljišč, medtem ko pri odgovorih občanov izrazito izstopa možnost denarne odškodnine ali odkupa v višini tržne vrednosti nepremičnine povečano za stroške povezane s postopkom, ki ji sledi možnost denarne odškodnine ali odkupa v višini tržne vrednosti nepremičnine na podlagi individualne cenitve (cenilec).

Odgovori na vprašanja, vezana na 1. znanstveno – raziskovalni problem, to je ali imajo upravljalci javnih cest in lastniki zemljiških parcel ob javnih cestah po njihovem mnenju ustrezne zakonske možnosti za ureditev stvarnopravnega stanja cest, kažejo, da obe anketirani skupini za:

- ustreznost z zakonom predvidenega in določenega postopka urejanja lastništva zemljiških parcel, po katerih tečejo občinske ceste ter
- ustreznost postavljene, zakonsko varovane meje med zasebnim in javnim interesom v primeru urejanja lastništva zemljiških parcel po katerih tečejo občinske ceste smatrata, da nista ustrezni;

glede:

- sprejemljive in pričakovane odkupne cene za zemljišča kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč,
- sprejemljive odkupne cene zemljišč kategoriziranih občinskih cest v zasebni lasti za občine,
- najprimernejšega načina za določanje vrednosti zemljišč, potrebnih za zagotovitev javnega cestnega omrežja,
- načina določitve vrednosti zemljišč pri uspešno izvedenih postopkih prenosa lastninske pravice,

pridobljeni podatki kažejo, da se pričakovanja oz. mnenja anketiranih skupin statistično razlikujejo, njihova pričakovanja glede sprejemljivih cen in načina določanja cen se močno razlikujejo, kar pomeni, da v praksi težko pride do dogovora med obema stranema. Tudi možnost razlastitve nobena skupina ni označila kot ustrezen postopek. To pomeni, da se odgovori obeh skupin razlikujejo tudi od možnosti, ki jih veljavna zakonodaja predpisuje.

Glede na odgovore na zastavljeni 1. znanstveno – raziskovalni problem sledi, da po mnenju obeh anketiranih skupin, upravljalcev javnih cest in lastnikov zemljiških parcel ob javnih cestah, po njihovem mnenju nimajo ustrezne zakonske možnosti za ureditev stvarnopravnega stanja cest.

Rezultati ankete k drugemu znanstveno-raziskovalnemu problemu

ZRP2: Kako upravljavci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest zaznavajo kot pomemben (nepomemben) dejavnik v upravljanju? Ali imajo upravljalci javnih cest izdelane strategije reševanja obstoječega stanja?

Tabela 2: Rezultati ankete k drugemu znanstveno-raziskovalnemu problemu

| **Hipoteze / znanstveno-raziskovalni problemi** | **H1 / 2ZRP** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anketna vprašanja** | **Številka Vpr** | | **Občine mestne** | | **Občine druge** | | **Očine skupaj** | | **Občani** | | |
| | **občine** | **občani** | $\bar{X}$ | $s$ | $\bar{X}$ | $s$ | $\bar{X}$ | $s$ | $\bar{X}$ | $s$ | **Sig.** |
| V kakšnem obsegu so v vaši občini zemljiške parcele, po katerih tečejo kategorizirane občinske ceste, v lasti občine? | 11 | | | | | | | | | | |
| V kakšnem obsegu imajo v vaši občini zemljiške parcele, po katerih tečejo kategorizirane občinske ceste, status javnega dobra? | 12 | | | | | | | | | | |
| Koliko parcel, ki niso v lasti občine in po njej tečejo kategorizirane občinske ceste, ima status javnega dobra? | 13 | | | | | | | | | | |
| Ali imate sprejet odlok o občinskih cestah? | 14 | | | | | | | | | | |
| Če je odgovor na prejšnje vprašanje pritrdilen, prosim navedite ali je | 15 | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| odlok usklajen z veljavno zakonodajo s področja cest? | | | | | | | | | | | |
| Ali imate sprejet odlok o kategorizaciji občinskih cest? | 16 | | | | | | | | | | |
| Ali je bila zoper vaš odlok o kategorizaciji občinskih cest kdaj sprožena ustavna presoja zaradi kategorizacije na zemljišču, ki ni v lasti občine? | 17 | | | | | | | | | | |
| Če je bila ustavna presoja sprožena prosim navedite, kaj je po odločitvi sodišča ukrenila občina? | 18 | | | | | | | | | | |
| Kolikšni so povezani stroški z ustavnimi pritožbami zoper odloke o kategorizaciji javnih cest? | 19 | | | | | | 1,58 | 0,950 | | | |
| Ali imate zaradi neurejenega lastništva težave pri rednem vzdrževanju občinskih cest? | 20 | | 3,38 | 0,744 | 2,42 | 1,198 | 2,5 | 1,196 | | | |
| Ali imate zaradi neurejenega lastništva težave pri investicijskem vzdrževanju občinskih cest? | 21 | | 3,75 | 0,707 | 2,80 | 1,252 | 2,88 | 1,249 | | | |
| Ali se zaradi neurejenega lastništva občinskih cest soočate s slabo voljo lastnikov zemljišč? | 22 | | 4,5 | 0,756 | 3,12 | 1,166 | 3,24 | 1,225 | | | |
| Kako pogosti so poskusi oviranja nadaljnje uporabe občinskih cest s strani zemljiškoknjižnih lastnikov zemljišč? | 23 | | 32,88 | 0,991 | 2,3 | 0,867 | 2,34 | 0,901 | | | |
| Koliko časa tečejo postopki pridobivanja zemljišč za obstoječe občinske ceste, kadar tečejo po zemljiščih, ki niso v lasti občine? | 24 | | 2 (media na) | | | | | | | | |
| Ali ima vaša občina seznam parcel za katere bi bilo potrebno urediti lastništvo? | 25 | | | | | | | | | | |
| Ali ima vaša občina izdelan terminski plan urejanja ter pridobivanja zemljišč zanje? | 26 | | | | | | | | | | |
| Ali ima vaša občina v proračunu zagotovljena namenska sredstva za pridobivanje zemljišč po katerih tečejo občinske ceste in niso v lasti občine? | 27 | | | | | | | | | | |
| Kako vaša občina oceni vrednost zemljišča, ki ga namerava odkupiti za potrebe ureditve lastništva obstoječih kategoriziranih občinskih cest? | 28 | | | | | | | | | | |
| Kaj vam pri pridobivanju zemljišč povzroča največje težave? | 29 | | | | | | | | | | |
| Ali je pridobitev tovrstnih zemljišč uvrščeno med prednostne naloge vaše občine? | 30 | | | | | | 2,72 | 0,958 | | | |

***Vprašanje 11 za upravljavce:*** Glede obsega zemljiških parcel, po katerih tečejo kategorizirane občinske ceste, v lasti občine pridobljeni podatki kažejo, da imamo v Sloveniji približno le polovico občinskih cest z urejenim lastništvom. Podatki pomenijo tudi, da občine imajo evidence s tega področja, le malo več kot desetina občin, s podatkom kolikšen delež zemljiških parcel, po katerih tečejo kategorizirane občinske ceste, je v lasti občine, s tem podatkom ne razpolaga.

***Vprašanje 12 za upravljavce:*** Glede obsega zemljiških parcel, po katerih tečejo kategorizirane občinske ceste, in te parcele imajo status javnega dobrega

pridobljeni podatki kažejo, da imamo v Sloveniji približno le polovico občinskih cest z urejenim statusom javnega dobra. Podatki pomenijo tudi, da občine imajo evidence s tega področja, le malo več kot desetina občin s podatkom kolikšen delež zemljiških parcel, po katerih tečejo kategorizirane občinske ceste, je v lasti občine, s tem podatkom ne razpolaga.

***Vprašanje 13 za upravljavce:*** Glede deleža parcel s statusom javnega dobrega, ki niso v lasti občine in po njih tečejo kategorizirane občinske ceste pridobljeni podatki v kažejo, da takih parcel ni veliko. Slabšo sliko pa kaže podatek, da kar slaba tretjina občin s podatkom na koliko parcelah, po katerih tečejo kategorizirane občinske ceste, pa niso v lasti občin, je podeljen status javnega dobra, s tem podatkom ne razpolaga.

***Vprašanje 14 in 15 za upravljavce:*** Stanje na področju urejenosti področja cest z občinskimi odloki ter usklajenost z veljavno zakonodajo je po prejetih podatkih dobra. Skoraj vse občine odlok na tem področju ima sprejet, v več kot treh četrinah občin je tudi usklajen z veljavno zakonodajo.

***Vprašanje 16 za upravljavce:*** Odlok o kategorizaciji občinskih cest imajo, po prejetih podatkih, sprejetega prav vse anketirane občine.

***Vprašanje 17, 18 in 19 za upravljavce:*** Pridobljeni podatki kažejo, da je bila v skoraj v četrtini občin sprožena ustavna presoja o kategorizaciji občinskih cest zaradi kategorizacije na zemljišču, ki ni v lasti občine, da pa so občine pristopile k reševanju zadeve, le v majhnem deležu tega še niso storile. Večina občin, dobri dve tretjini, smatra, da stroškov, povezanih z ustavnimi pritožbami zoper odloke o kategorizaciji javnih cest ni, le zelo redke občine so tovrstne stroške ocenile kot bolj pomembne.

***Vprašanje 20 za upravljavce:*** Glede težav pri rednem urejevanju občinskih cest, zaradi neurejenega lastništva pridobljeni podatki kažejo, da skoraj polovica anketiranih občin (45,9 %) občasno do zelo pogosto srečuje s temi težavami, le slaba četrtina takih težav sploh nikoli nima. So pa mestne občine izrazile višjo stopnjo zaznanih težav s tega področja kot ostale. Odgovori mestnih občin so tudi bolj enotni, saj je standardni odklon pri njih višji.

***Vprašanje 21 za upravljavce:*** Še slabša je situacija pri investicijskem vzdrževanju občinskih cest. Tu se več kot polovica, skoraj dve tretjini občin (60,8 %), zaradi neurejenega lastništva občasno do zelo pogosto srečuje s temi težavami. Mestne občine so izrazile bistveno višjo stopnjo zaznanih težav s tega področja kot ostale. Odgovori mestnih občin so tudi bolj enotni, saj je standardni odklon pri njih nižji.

***Vprašanje 22 za upravljavce:*** Glede pogostosti soočanje s slabo voljo lastnikov, zaradi neurejenega lastništva občinskih cest pridobljeni podatki kažejo, da se več kot polovica anketiranih občin občasno do zelo pogosto srečuje s temi težavami. Povprečje za vse občine je na lestvici od 1 do 5 nad oceno 3, mestne občine so izrazile še bistveno višjo stopnjo zaznanih težav s tega področja kot ostale. Odgovori mestnih občin so tudi bolj enotni, saj je standardni odklon pri njih nižji.

***Vprašanje 23 za upravljavce:*** Glede pogostosti poskusa oviranja nadaljnje uporabe občinskih cest s strani zemljiškoknjižnih lastnikov zemljišč pridobljeni podatki kažejo, da se več kot polovica anketiranih občin nikoli, do občasno srečuje s temi težavami. Mestne občine so izrazile višjo stopnjo zaznanih težav s tega področja kot ostale. So pa odgovori mestnih občin manj enotni kot pri ostalih, saj je standardni odklon pri njih višji.

***Vprašanje 24 za upravljavce:*** Glede trajanja postopkov za pridobivanje zemljišč za obstoječe občinske ceste, kadar te tečejo po zemljiščih, ki niso v lasti občine pridobljeni podatki kažejo, da je modus odgovorov od 6 mesecev do 1 leta, mediana odgovorov od 6 mesecev do 1 leto, kar pomeni, da so tovrstni postopki v polovici občin trajajo več kot pol leta.

***Vprašanje 25, 26 in 27 za upravljavce:*** Pridobljeni podatki glede obstoja seznama parcel za katere bi bilo potrebno urediti lastništvo kažejo, da več kot polovica anketiranih občin take sezname ima, skoraj dve tretjini jih ima tudi zagotovljena proračunskih sredstev za pridobivanje zemljišč po katerih tečejo občinske ceste, ki niso v lasti občine, manj kot četrtina občin pa ima izdelane tudi terminskega plana urejanja ter pridobivanja zemljišč parcel za katere bi bilo potrebno urediti lastništvo.

***Vprašanje 28 za upravljavce:*** Glede načina ocenitve vrednosti zemljišča, ki ga občina namerava odkupiti za potrebe ureditve lastništva obstoječih kategoriziranih občinskih cest pridobljeni podatki kažejo, da se daleč največji del anketiranih občin poslužuje denarne odškodnine ali odkupa, določene v višini tržne vrednosti nepremičnine na podlagi individualne cenitve (cenilec). Kot druge naslednje najbolj pogoste možnosti se občine poslužujejo samostojne določitve enotne cene denarne odškodnine ali odkupa za istovrstne kategorije zemljišč. V skoraj desetini občine poskusijo dobiti zemljišča brezplačno.

***Vprašanje 29 za upravljavce:*** Glede povzročitelja največjih težav pri pridobivanju zemljišč pridobljeni kažejo, da so to nezadostna razpoložljiva finančna sredstva občin in previsoka pričakovana odkupna cena lastnikov na drugi strani. Ti dve mnenji predstavljata skoraj tričetrtine odgovorov.

***Vprašanje 30 za upravljavce:*** Prednost nalog pridobitve zemljišč za občinske ceste v občini podatki kažejo, da je aritmetična sredina odgovorov na lestvici od 1 do 5 pod vrednostjo 3. kar pomeni, da so zavest o pomembnosti ureditve tega segmenta še ni nekaj samoumevnega med slovenskimi občinami.

Odgovori anketiranih občin na vprašanja, vezana na 2. znanstveno – raziskovalni problem, to je kako upravljavci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest zaznavajo kot pomemben (nepomemben) dejavnik v upravljanju ter ali imajo upravljalci javnih cest izdelane strategije reševanja obstoječega stanja kažejo, da občine zaznavajo da:

- imamo visok delež, približno polovico, občinskih cest z neurejenim lastništvom,
- imamo visok delež, približno polovico, občinskih cest z neurejenim statusom javnega dobra,
- je v skoraj v četrtini občin že bila sprožena ustavna presoja o kategorizaciji občinskih cest zaradi kategorizacije na zemljišču, ki ni v lasti občine,

- da so težava pri rednem urejevanju občinskih cest, zaradi neurejenega lastništva pogoste,
- da so težave pri investicijskem vzdrževanju občinskih cest zaradi neurejenega lastništva še pogostejše,
- da se soočajo s slabo voljo lastnikov, zaradi neurejenega lastništva občinskih cest,
- da se srečujejo tudi s poskusi oviranja nadaljnje uporabe občinskih cest s strani zemljiškoknjižnih lastnikov zemljišč,
- da so postopki za pridobivanje zemljišč za obstoječe občinske ceste, kadar te tečejo po zemljiščih, ki niso v lasti občin dolgotrajni

ter da

- imajo skoraj vse občine občinske odloke o urejanju javnih cest, ki so v glavnini tudi usklajeni z veljavno zakonodajo,
- prav vse občine imajo sprejete odloke o kategorizaciji občinskih,
- občine večinoma imajo evidence kolikšen delež zemljiških parcel, po katerih tečejo kategorizirane občinske ceste, je v lasti občine,
- več kot polovica anketiranih občin ima sezname parcel za katere bi bilo potrebno urediti lastništvo,
- da so po sodnih odločitvah zaradi zakonske primoranosti občine v večini primerov sicer pristopile k reševanju zadeve, da pa večina občin stroškov, povezanih z ustavnimi pritožbami zoper odloke o kategorizaciji javnih cest ne ocenjuje kot pomemben dejavnik,
- skoraj dve tretjini občin ima zagotovljena tudi proračunska sredstva za pridobivanje zemljišč po katerih tečejo občinske ceste, ki niso v lasti občine,

kar kaže na to, da upravljavci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest sicer zaznavajo kot pomemben dejavnik v upravljanju,

vendar pa ima

- manj kot četrtina občin izdelane tudi terminskega plana urejanja ter pridobivanja zemljišč parcel za katere bi bilo potrebno urediti lastništvo,
- kar slaba tretjina občin s podatkom na koliko parcelah, po katerih tečejo kategorizirane občinske ceste, pa niso v lasti občin, je podeljen status javnega dobra, s tem podatkom sploh ne razpolaga,
- v večini občin naloga pridobitve zemljišč za občinske ceste ni prioriteta,

vendar kljub temu nimajo izdelanih strategij reševanja obstoječega stanja.

Poleg tega primerjava rezultatov odgovorov na:

- ***vprašanje 28 za upravljavce:*** Način ocenitve vrednosti zemljišča, ki ga občina namerava odkupiti za potrebe ureditve lastništva obstoječih kategoriziranih občinskih cest,
- ***vprašanje 29 za upravljavce*** Povzročitelj največjih težav pri pridobivanju zemljišč,
- ***vprašanje 33 za upravljavce*** Sprejemljiva odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč po mnenju občin,

- ***vprašanje 19 za splošno javnost*** Sprejemljiva odkupna cena za zemljišča kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč po mnenju občanov in
- ***vprašanje 34 za upravljavce*** Sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za občine

kaže na to, da se mnenja občin in občanov kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za občine na eni strani in za občane na drugi (vprašanji 34 za upravljavce in 19 za splošno javnost) statistično razlikujejo. Razlikujejo se tudi mnenja občin in občanov kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč (vprašanji 33 za upravljavce in 19 za splošno javnost). Razlikujejo se tudi odgovori kaj je sprejemljiva odkupna cena zemljišč kategoriziranih občinskih cest v zasebni lasti za lastnike zemljišč po mnenju občanov in kakšen je način ocenitve vrednosti zemljišča, ki ga občina namerava odkupiti za potrebe ureditve lastništva obstoječih kategoriziranih občinskih cest (vprašanji 19 za splošno javnost in 28 za upravljavce). Iz navedenega so pričakovani tudi odgovori občin kaj je povzročitelj največjih težav pri pridobivanju zemljišč (vprašanje 29 za upravljavce). Po mnenju občin imajo lastniki glede odkupne cene zemljišč previsoka pričakovanja.

Glede na odgovore na zastavljeni 2. znanstveno – raziskovalni problem sledi, da po mnenju anketirane skupine upravljalci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest zaznavajo kot pomemben dejavnik v upravljanju, vendar kljub temu nimajo izdelanih strategij reševanja obstoječega stanja.

Rezultati preverjanja zastavljene hipoteze

H1: Veljavna zakonodaja s področja javnih cest ni dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest, niti ni v pomoč pri administrativnemu in funkcionalnemu urejanju javnih cest, zato se upravljalci cest ne ukvarjajo s sistematičnim odpravljanjem razlik med zakonsko predpisanim in obstoječim stanjem. Upravljalci občinskih cest z možnostmi, ki jih ponuja trenutna ureditev pri urejanju stvarnih pravic za obstoječe javne ceste, niso zadovoljni.

S potrditvijo obeh zastavljenih znanstveno – raziskovalnih problemov tem smo potrdili tudi hipotezo, da veljavna zakonodaja s področja javnih cest ni dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest, niti ni v pomoč pri administrativnemu in funkcionalnemu urejanju javnih cest, zato se upravljalci cest ne ukvarjajo s sistematičnim odpravljanjem razlik med zakonsko predpisanim in obstoječim stanjem ter da upravljalci občinskih cest z možnostmi, ki jih ponuja trenutna ureditev pri urejanju stvarnih pravic za obstoječe javne ceste, niso zadovoljni.

## Zaključek

Problematika izhajajoča iz neurejenega stvarnopravnega stanja javnih cest je na teoretičnem področju v slovenskem prostoru skopo obravnavana. V pravni literaturi sicer najdemo kar nekaj prispevkov, ki situacijo obravnavajo zgolj z

stvarnopravnega vidika ter pozivajo k ureditvi stanja, manj pa je teoretične osvetlitve druge problematike povezane s tem.

V raziskavi smo želeli predvsem z znanstveno utemeljenimi metodologijami pridobiti podatke ali je veljavna slovenska zakonodaja s področja javnih cest dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest ter v pomoč pri administrativnemu in funkcionalnemu urejanju javnih cest ter celostno predstaviti področje, začenši s problemom dejanskega razlastninjenja lastnikov zemljišč brez pravične odškodnine in odvzema predvidenega pravnega varstva, neučinkovitim odzivanjem nadzornih organov na taka ravnanja ter težavam, ki jih to vrstno stanje povzroča tako pri vzdrževanju, investicijskem vzdrževanju kot varovanju cest. V mednarodnopravnem področju je bilo sicer objavljenih nekaj znanstvenih prispevkov, ki pa se bolj osredotočajo na zgolj pravni vidik odvzema oziroma omejitve lastninske pravice in ne toliko na posledice in specifično področje cest. Zanimanje za stanje javnih cest namreč ni omejeno le na področje pravičnega odnosa do izvornega lastnika zemljišča, pač pa javne ceste predstavljajo javni interes. Tako se na tem področju krešeta dva nasprotna interesa, pravica zemljiškoknjižnega lastnika zemljišča ter javni interes na drugi strani.

Če povzamemo, s pomočjo anketnega vprašalnika smo zbrali podatke in informacije glede zastavljenih znanstveno-raziskovalnih vprašanj in postavljene hipoteze ter pridobili obsežno izvirno bazo podatkov o obstoječem in pričakovanem stanju na področju urejanja stvarnopravnega stanja javnih cest, v katero smo zajeli informacije upravljavcev občinskih cest, to je občin, ter na drugi strani informacije uporabnikov le teh.

Glede na odgovore na zastavljeni 1. znanstveno – raziskovalni problem sledi, da po mnenju obeh anketiranih skupin upravljalci javnih cest in lastniki zemljiških parcel ob javnih cestah po njihovem mnenju nimajo ustrezne zakonske možnosti za ureditev stvarnopravnega stanja cest. Glede na odgovore na zastavljeni 2. znanstveno – raziskovalni problem sledi, da po mnenju anketirane skupine upravljalci javnih cest problematiko neurejenih stvarnopravnih razmerij na področju javnih cest zaznavajo kot pomemben dejavnik v upravljanju, vendar kljub temu nimajo izdelanih strategij reševanja obstoječega stanja. Potrdili smo zastavljeno hipotezo, da veljavna zakonodaja s področja javnih cest ni dovolj močan vzvod za urejanje stvarnopravnega stanja javnih cest, niti ni v pomoč pri administrativnemu in funkcionalnemu urejanju javnih cest, zato se upravljalci cest ne ukvarjajo s sistematičnim odpravljanjem razlik med zakonsko predpisanim in obstoječim stanjem ter da upravljalci občinskih cest z možnostmi, ki jih ponuja trenutna ureditev pri urejanju stvarnih pravic za obstoječe javne ceste, niso zadovoljni.

S tako pridobljenimi izsledki raziskave smo v prvi vrsti dobili teoretično podlago za utemeljitev zastavljenih strokovnih vprašanj o primernosti obstoječih metod pridobivanja potrebnih zemljišč za potrebe vzpostavitve ustreznega stvarnopravnega stanja javnih kategoriziranih cest v sodobnem svetu, pomenijo pa obenem tudi podlago za potrditev resnosti izpostavljene problematike ter za postavitev smernic za spreminjanje stanja v bodoče in za oblikovanje sodobnejših pristopov in metodologij za reševanje raziskovane problematike.

## Viri in literatura


1. Antonio, Azuela, Herrera Carlos, Taking land around the world: International Trends in the Expropriation for Urban and Infrastructure Projects. Working paper. Cambridge: Lincoln Institute of Land Policy, 2007.
2. Basnet, Shanti, Lease as an alternative approach for access to land for infrastrukture development. Master of Science in Geo-Information Science and Earth Observation. Enschede: University of Twentw, Faculty of Geo-Informetion Science and Earth Observation, 2012.
3. Belej, Miroslaw, Walacik, Marek, Land Acquisition for Public Purpose in Poland on Example of Public Roads Construction.. Stockholm: Integrating Generations, FIG Working Week, 2008.
4. Breakwell, Glynis M., Hammond, Sean in Fife-Schaw, Chris, Research methods in psychology. London: SAGE Publications Ltd., 1995.
5. Fryxell, E. Gerald, LO, W. H. Carlos, Organizational Membership and Environmental Ethics: A Comparison of Managers in State-owned Firms, Collectives, Private Firms and Joint Ventures in China. V: World Development. 2001, vol. 29, n. 11, str. 1941-1956.
6. Juhart, Miha, Lastninska pravica in omejitve razpolaganja. V: Podjetje in delo. 1998, št. 6/7, str. 1217-1223.
7. Karčnik, Irena, Grum, Bojan, Dežman, Aljoša (2017). V: 2nd Conference of Interdisciplinary Research on Real Estate (Being) CIRRE Conference / Grum B., Temeljotov Salaj A., Campuzano Bolarin F. (ur.). Cartagena: Institute of Real Estate Studies, str. 135-149.
8. Krisper Kramberger, Marija, Javno dobro v novi pravni ureditvi. V: Pravna praksa. 1998, št. 4, str. I-VIII.
9. Krisper Kramberger, Marija, Lastninsko pravni režim javnih cest – občinske javne
10. Kucharska, Ewa S., Uncertainty of Valuation in Expropriation Process – the Case of Poland. V: Nordic Journal of Surveying and Real Estate Research. 2008, vol. 3, str. 83-92.
11. Newcombe, Andrew, The Boundaries of Regulatory Expropriation in International Law. B. C. Canada: University of Victoria, Faculty of Law, 2005.
12. Źróbek, Ryszard, Źróbek, Sabina, Expropriation as an Exeptional Tool of Acquisition of Land for Public Purposes. V: Geomantics and Envirinmental Engineering. 2008, vol. 2, n. 1, str. 85-94.
13. Yin, Robert K., Case study research:design and methods. Newbury Park: Sage, 2003.
14. Field, Andy. (2013). Discovering statistics using IBM SPSS statistics. London: Sage Publications Ltd.
15. Fister, Peter., et. al. (2003). Uvod v znanstveno raziskovalno metodologijo na področju arhitekture in urbanizma. Ljubljana: Univerza v Ljubljani, Fakulteta za arhitekturo.
16. Toš, Niko., Hafner Fink, Mitja. (1998). Metode družboslovnega raziskovanja. Ljubljana: Fakulteta za družbene vede.
17. Število prebivalcev po občinah, Slovenija, 2020. Statistični urad RS, 23. 12. 2020. URL: Prebivalstvo po: OBČINE , POLLETJE. SiteTitle (stat.si)

**Pravni viri in sodna praksa**


18. Odklonilno ločeno mnenje k ODLOČBI US RS, št. U-I-289/12, z dne 24. januarja 2013.
19. ODLOČBA US RS, št. U-I-202/08, z dne 9. junij 2009. V: PP, 2009, št. 29/30, str. 20
20. ODLOČBA US RS, št. U-I-72/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
21. ODLOČBA US RS, št. U-I-113/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
22. ODLOČBA US RS, št. U-I-154/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
23. ODLOČBA US RS, št. U-I-160/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
24. ODLOČBA US RS, št. U-I-164/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
25. ODLOČBA US RS, št. U-I-172/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
26. ODLOČBA US RS, št. U-I-200/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
27. ODLOČBA US RS, št. U-I-211/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
28. ODLOČBA US RS, št. U-I-220/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
29. ODLOČBA US RS, št. U-I-221/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
30. ODLOČBA US RS, št. U-I-223/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
31. ODLOČBA US RS, št. U-I-234/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
32. ODLOČBA US RS, št. U-I-269/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
33. ODLOČBA US RS, št. U-I-278/10, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
34. ODLOČBA US RS, št. U-I-61/11, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
35. ODLOČBA US RS, št. U-I-74/11, z dne 9. junij 2011. Uradni list RS, št. 60/2011.
36. ODLOČBA US RS, št. U-I-75/11, z dne 6. junij 2011. Uradni list RS, št. 60/2011.
37. ODLOČBA US RS, št. U-I-224/00, z dne 9. maj 2002. Uradni list RS, št. 50/2002.
38. ODLOČBA US RS, št. U-I-21/04, z dne 9. junij 2005. Uradni list RS, št. 59/2005, 88/2005.
39. ODLOČBA US RS, št. U-I-240/05, z dne 15. marca 2007. Uradni list RS, št. 29/2007.
40. ODLOČBA US RS, št. U-I-335/05, z dne 10. 10. 2007. Uradni list RS, št. 96/2007.
41. ODLOČBA US RS, št. U-I- 18/06, z dne 20. 3. 2008. Uradni list RS, št. 33/2008.
42. ODLOČBA US RS, št. U-I- 304/06, z dne 15. 5. 2008. Uradni list RS, št. 53/2008.
43. SODBA III Ips 59/2010, 7. september 2010 (v zvezi s sodbo Višjega sodišča v Ljubljani I Cpg 869/2009). V: PP, 2010, str. 21.
44. SKLEP št. 661/2010/EU Evropskega parlamenta in sveta, z dne 7. julij 2010 o smernicah Unije za razvoj vseevropskega prometnega omrežja UL L 204, str. 1-128.
45. (SPZ) Stvarno pravni zakonik. Uradni list RS, št. 87/2002, s kasnejšimi sprem. in dopol.
46. (ZCes-1) ZAKON o cestah. Uradni list RS, št. 109/2010, s kasnejšimi sprem. in dopol.

# Comparison of functional regionalisation methods – geogerantological approach

**Samo Drobne**

University of Ljubljana
Faculty of Civil and Geodetic Engineering
samo.drobne@fgg.uni-lj.si

**Marija Bogataj**

University of Ljubljana
SEB & Institute INRISK
marija.bogataj@guest.arnes.si

## Abstract

The paper refers to the newly established area of research: This work belongs to the field of geo-gerontology, which observes, forecasts, and reports on the spatial phenomena of ageing. It focuses on issues of regionalisation for long-term care, demographic status with states of functional ability of the population and projections of these states, the required built environment and human resources to improve the quality of ageing. Care and service networks for older adults are usually organised hierarchically, in line with the spatial organisation of hierarchical systems as formally known in the developed states of Europe. Recently, the issue of functional regions has come more and more to the fore, i.e. regions in which subjects and objects are most closely connected in space. This also means that the flows of people and goods, and possibly also the flows of finance and information, are most intensive within these regions. This is also true for the provision of care and other services for older adults, which is a key element in the development of long-term care (LTC). In this study, we have considered functional regions as local and regional labour market areas for caregivers of vulnerable older adults in the region who are engaged in LTC. In this paper we describe the delineation of regions, i.e. the modelling of functional regions in Slovenia using two established methods, the CURDS method and the Intramax method. The functional regions were modelled for selected spatial levels for which there are established or at least widely presented and proposed systems of regions in Slovenia. The assessment evaluation was carried out based on the fuzzy evaluation method. The results of regional modelling and evaluation can contribute to effective spatial organisation of regions at different hierarchical levels for long-term care needs.

Keywords: geogerontology, functional regions, CURDS, Intramax, fuzzy evaluation, long-term care, Slovenia, social infrastructure.

# PRIMERJAVA METOD FUNKCIONALNE REGIONALIZACIJE - GEOGERONTOLOŠKI PRISTOP

**Povzetek:**

Prispevek sodi na področje geogerontologije, ki opazuje, napoveduje in poroča o na prostor vezanih pojavih staranja, kjer izstopajo vprašanja regionalizacije za potrebe dolgotrajne oskrbe, demografskega stanja s stanji funkcionalnih zmožnosti prebivalstva, kakor tudi projekcij teh stanj, grajenega okolja in človeških virov, potrebnih za dvig kakovosti staranja. Oskrbovalne mreže za starejše prebivalstvo so praviloma organizirane hierarhično, se pravi po prostorski organiziranosti hierarhičnih prostorskih sistemov, kot jih formalno poznamo v razvitih državah Evrope. V zadnjem času pa v ospredje vse bolj prodirajo vprašanja funkcionalnih regij, to je regij v kateri so subjekti in objekti v prostoru najbolj povezani; to pomeni, da med njimi tečejo najintenzivneje tokovi prebivalcev in blaga, lahko pa tudi finančni in informacijski tokovi. V študiji smo obravnavali funkcionalne regije kot lokalna in regionalna območja trga dela za negovalce ranljivih starejših odraslih v regiji, ki se vključujejo v dolgotrajno oskrbo. V tem članku opisujemo razmejevanje regij, se pravi modeliranje funkcionalnih regij v Sloveniji z uporabo dveh uveljavljenih metod, metode CURDS ter metode Intramax. FRs so bile modelirane za izbrane prostorske ravni, za katere v Sloveniji obstajajo vzpostavljeni ali vsaj v širši javnosti predstavljeni in predlagani sistemi regij. Vrednotenje je bilo izvedeno na podlagi metode mehkega vrednotenja. Rezultati modeliranja in vrednotenja regij lahko prispevajo k učinkoviti prostorski organizaciji regij na različnih hierarhičnih ravneh za potrebe dolgotrajne oskrbe.

Ključne besede: geogerontologija, funkcionalne regije, CURDS, Intramax, mehko vrednotenje, dolgotrajna oskrba, Slovenija, socialna infrastruktura

## Uvod

Fakulteta za gradbeništvo in geodezijo Univerze v Ljubljani in Zavod INRISK razvijata geogerontološki laboratorij, ki opazuje, napoveduje in poroča o na prostor vezanih pojavih staranja. To področje raziskav pomeni stičišče družbene geografije, kjer izstopajo vprašanja regionalizacije, demografije in grajenega okolja in študij staranja ter z njim povezana vprašanja upada funkcionalnih zmožnosti starejšega prebivalstva ter storitev, ki so potrebne zanj. S projekcijami stanj pa daje podporo lokalni, nacionalni in EU politiki pri oblikovanju programov za dvig kakovosti življenja starejših prebivalcev, od vprašanja gradnje socialne infrastrukture in oskrbovalnih mrež, do planiranja človeških virov za to oskrbovanje.

Oskrbovalne mreže so praviloma organizirane hierarhično po prostorski organiziranosti hierarhičnih prostorskih sistemov. Tako poznamo v Evropi organiziran sistem NUTS ravni. Vse bolj pa se pri študiji in tudi pri planiranju aktivnosti v prostoru uveljavlja koncept funkcionalnih regij. Funkcionalna regija (FR) je regija, v kateri so subjekti in objekti v prostoru najbolj povezani, kar pomeni, da med njimi tečejo najintenzivneje tokovi prebivalcev in blaga, lahko pa tudi finančni in informacijski tokovi. Tako razumemo FR kot prostorsko enoto na neki ravni hierarhičnih prostorskih struktur.

FR se vse bolj upoštevajo pri analizi gospodarskih, družbenih, okoljskih in prostorskih ureditev, kakor tudi na prostor vezanih modelov v podporo odločanju pri razvojno povezanih odločitvah o delovanju prostorskih omrežij in nanje vezanih investicijah v prostor. V kontekstu demografskih in tehnoloških sprememb so te regije posplošitev spreminjajočih se družbenih in gospodarskih funkcionalnih kontekstov na nekem območju. Najpogosteje se analizirajo na podlagi ekonomskih interakcij, pri čemer so FR običajno predstavljene kot lokalna/regionalna območja in vozlišča sistemov izvajanja nekih funkcij ter tokov človeških virov v njih ter med ostalimi enotami. Na podlagi koncepta človeških virov v takih sistemih FR obsegajo eno ali več območij lokalnega trga dela. Poti na delo, zlasti dnevne, so najpogostejša in stabilna oblika rednega gibanja prebivalstva. Zato manjše spremembe na trgu dela ne vplivajo bistveno na vzorec dnevnih tokov na delo in z dela; spremembe meja FR se pojavijo le, ko pride do večjih sprememb v vzorcu teh tokov.

V študiji smo predpostavili funkcionalne regije kot lokalna in regionalna območja trga dela za negovalce ranljivih starejših odraslih v regiji, ki se vključujejo v dolgotrajno oskrbo (DO). V tem prispevku opisujemo modeliranje FR v Sloveniji z uporabo dveh uveljavljenih metod: metode CURDS (Coombes, Green in Openshaw, 1986; Coombes in Bond, 2008), ki temelji na notranjih pravilih za združevanje osnovnih prostorskih enot (OPE) v FR, in metode Intramax (Masser in Brown, 1975, 1977), ki temelji na numeričnem pristopu za hierarhično združevanje v skupine.

FR smo modelirali za izbrane prostorske ravni, za katere v Sloveniji obstajajo vzpostavljeni ali vsaj v širši javnosti prestavljeni in predlagani sistemi regij. Kakovost regionalizacije smo vrednotili z inovativno nadgradnjo s pristopom mehkih množic pripadnosti OPE k FR, kot sta ga v splošnem razvila Feng (2009) in Watts (2009, 2013) ter nadgradil (Drobne, 2020). Rezultati modeliranja in vrednotenja regij lahko prispevajo k oblikovanju hierarhičnih prostorskih struktur za analizo sedanjih in bodočih potreb ter organizacijo dolgotrajne oskrbe starostnikov.

## Kratek pregled literature

Poznamo tri osnovne pristope razmejevanja funkcionalnih regij (Casado-Díaz in Coombes, 2011; Drobne, 2016): (i) metode hierarhičnega razvrščanja v skupine, ki temeljijo na teoriji grafov, (ii) metode večstopenjskega združevanja in (iii) ostale,

posebne metode. V naši študiji smo uporabili metodo CURDS in metodo Intramax. Osnovno različico so na območjih Velike Britanije razvili Coombes, Green in Openshaw (1986). To metodo najdemo tudi pod imenom metoda TTWA (ang. Travel-To-Work-Areas), danes pa ima popularno ime CURDS po (ang.) »Centre for Urban and Regional Development Studies« iz Newcastla, VB. Metoda deluje po konceptu območij delovne mobilnosti (ODM), saj predpostavlja, da pretežni del delovnih mest v ODM zasedajo prebivalci tega območja. Tako tudi Eurostat (2017) opredeljuje ODM kot statistično, funkcionalno zamejeno, geografsko območje, katerega zamejitev ni nujno določena administrativno.

Spremljanje dinamike razmejitev ima več namenov, od študij trga dela do ugotavljanja učinkovitosti političnih programov, predvsem v povezavi z zagotavljanjem človeških virov in njihove socialne varnosti. Principom ODM naj bi sledila politika izobraževanja, zaposlovanja, kot tudi politika prostorskega in urbanističnega načrtovanja (Drobne, 2016). Najpogostejše osnovne prostorske enote (OPE), za katere se spremljajo (statistični) podatki, so popisni ali statistični okoliši, naselja ali občine.

ODM razumemo kot funkcionalna območja opredeljena s posplošitvijo tokov delovne mobilnosti med OPE (prav tam). Metoda CURDS je bila nazadnje posodobljena leta 2008 (Coombes in Bond, 2008). V naši raziskavi smo uporabili tretjo različico metode CURDS (prav tam). Metoda CURDS ne omogoča neposrednega nadzora števila modeliranih regij. V zadnjem času je bila ta metoda izvedena v Belgiji, na Nizozemskem in v Nemčiji (Schmitt in Van der Valk, 2017), na Češkem, Slovaškem in Madžarskem (Klapka in sodelavci, 2014; Halas in sodelavci, 2018), na Finskem (Palttila, 2017), v Italiji (Franconi, Ichim in D'Alò, 2017) ter v Španiji (Casado-Díaz, 2000, 2003). Za Slovenijo, so to metodo izvedli Drobne, Borovnik in Lakner (2018) ter Drobne (2020).

Metodo Intramax sta razvila Masser in Brown (1975, 1977) na podlagi matrike interakcij, kjer se tokovi interakcij vrednoteni znotraj OPE in med njimi. Cilj je čim bolj povečati delež interakcij na diagonali matrike, in tako čim bolj zmanjšati delež čezmejnih tokov v sistemu. Postopek hierarhičnega združevanja se izvede korakoma. V vsakem koraku se združita dve OPE, oziroma FR na nižjih ravneh obravnave, katerih relativna interakcija podaja najvišjo vrednost ciljne funkcije. Vrednosti ciljne funkcije računamo s pomočjo dejanskega in pričakovanega obsega tokov ter skupnega obsega vseh obravnavanih tokov. Postopek Intramax po $\square - 1$ koraku združi $\square$ OPE v eno FR. Prednost te hierarhične metode je, da omogoča nadzor števila modeliranih FR.

Metoda Intramax se uporablja pri hierarhičnih zasnovah na različnih ravneh in področjih modeliranja. Tako Drobne (2016) podrobneje našteva novejše analize trga dela (Landré, 2012; Landré in Håkansson, 2013; Koo, 2012), analize stanovanjskega trga (Brown in Hincks, 2008; Jaegal, 2013), analize trga blaga starejšega datuma (Brown in Pitfield, 1990), svetovnih trgovinskih regij (Kohl in

Brouver, 2014), analize funkcionalnih ekonomskih regij (Mitchell in Stimson, 2010; Mitchell in Watts, 2010; Mitchell in sod., 2013). Starejša je tudi analiza telekomunikacijskih regij (Fisher et al., 1993), najdemo lahko analizo upravnih in statističnih regij (Drobne in Bogataj, 2012a, 2012b), analize prometnih regij (Krygsman, de Jong in Nel, 2009), analizo regionalizacije storitev pa najprej najdemo v Drobne in Bogataj (2014, 2015).

**Izvedba regionalizacije Slovenije**

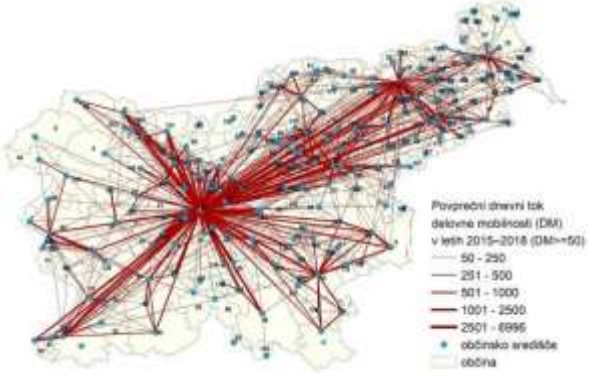
Statistični urad RS (SURS, 2019a) je na makro ravni Slovenije izvedel regionalizacijo v dvanajst statističnih regij. Regionalizacija je bila izvedena na podlagi obširne analize gravitacijskih območij delovne mobilnosti, voženj v šolo ter oskrbe prebivalstva, kot je razvidno iz dela Igorja Vrišerja (Vrišer, 1974). Uredba o standardni klasifikaciji teritorialnih enot Slovenije (SKTE) (Ur. l. RS, 28/00) je poskrbela, da so poslej meje dvanajstih statističnih regij usklajene z mejami občin. To omogoča enolično združevanje statističnih podatkov z nižjih na višje ravni (SURS, 2019a). Leta 2003 je bila kot orodje za izkazovanje evropsko primerljivih podatkov sprejeta in uveljavljena Uredba (ES) št. 1059/2003 Evropskega parlamenta in Sveta o oblikovanju skupne klasifikacije statističnih teritorialnih enot – NUTS (angl. »Common classification of territorial units for statistics«) (ES, 2003), ki se je s pristopom novih članic leta 2004 posodobila (Uredba (ES) št. 1888/2005) in s posodobitvijo Evropskega parlamenta in Sveta ES (2005), ki ureja ozemeljsko členitev držav na ravneh od NUTS 1 do NUTS 3 (SURS, 2019a). Od tega leta dalje predstavljajo statistične regije Slovenije raven NUTS 3. Pri tem velja upoštevati merila, ki določajo število prebivalcev v posamezni enoti na posamezni ravni NUTS, po katerih (Uredba o NUTS, št. 1059/2003) mora imeti posamezna NUTS3 regija, merjena s povprečnim številom prebivalcev, med 150.000 in 800.000 prebivalcev. To v praksi pomeni, da ima lahko Slovenija na tej ravni najmanj tri in največ trinajst statističnih regij (SURS, 2019a).

V naši študiji smo izhajali iz statističnih podatkov o delovni med 212 občinami v Sloveniji v obdobju 2015–2018. Te podatke smo pridobili iz Statističnega registra delovno aktivnega prebivalstva (SRDAP; SURS, 2019b), kjer sta na voljo kraj bivanja in kraj dela zaposlenega (SURS, 2017). Tokove delovne mobilnosti smo obravnavali v kvadratni matriki interakcij razsežnosti 212x212 od izvora □ v ponor □. Funkcionalne regije smo modelirali in vrednotili s podatki povprečnih dnevnih tokov delovne mobilnosti med občinami Slovenije v omenjenem obdobju. Prostorski podatki o statističnih regijah ter o občinah v Sloveniji so na voljo na Geodetski upravi RS (GURS, 2019a, 2019b).

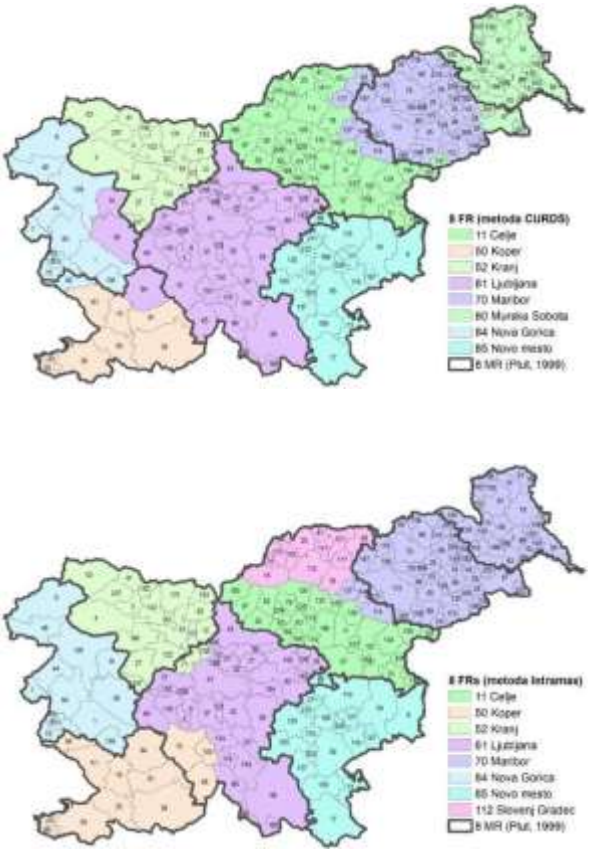
V študiji uporabljamo uradni šifrant občin v RS. FR smo modelirali po dveh uveljavljenih pristopih, po metodi večstopenjskega združevanja CURDS in po hierarhični metodi Intramax, rezultate modeliranja pa smo vrednotili po pristopu iz teorije mehkih množic. Rezultate vrednotenja funkcionalne regionalizacije smo primerjali na makro ravni z območji statističnih regij (SURS, 2019a) in makro regij

(Plut, 1999), ki smo jih pridobili na Geodetski upravi RS (GURS, 2019b) oziroma v (Plut, 1999), na mikro ravni pa z območji lokalnih akcijskih skupnosti (LAS) iz obdobja 2014–2020 (MKGP, 2019). Rezultati so podani v spodnjih kartah.

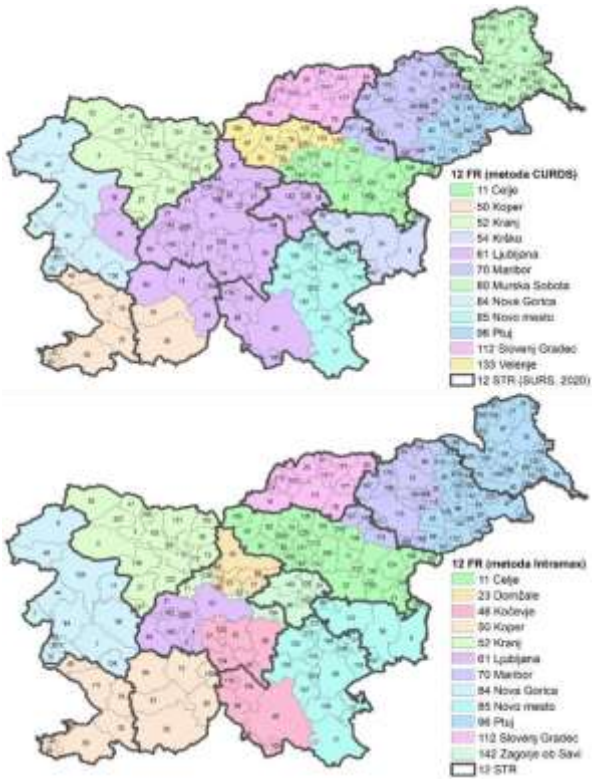
S pomočjo podatkov o povprečnih dnevnih tokovih delovne mobilnosti med občinami Slovenije v letih 2015–2018 (glej sliko 1) smo analizirali primernost združevanja občin na makro (slika 2) in mikro ravni Slovenije (slika 3).



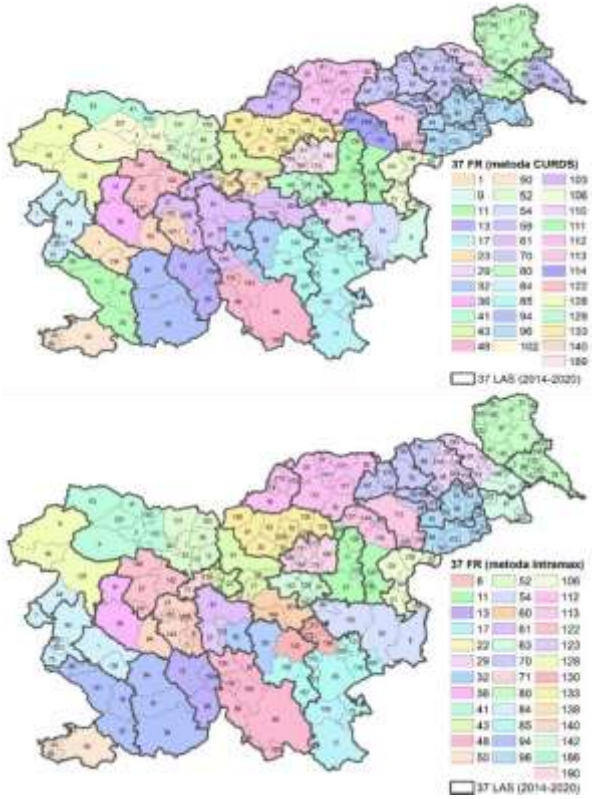

*Slika 1: Povprečni dnevni tokovi delovne mobilnosti med občinami Slovenije v letih 2015–2018 (vir podatkov: GURS, 2019a; SURS, 2019b; lastni izračun)*




*Slika 2: Primerjava regij na makro ravni - makro regije (MR, Plut, 1999), statistične regije (STR, SURS, 2019a; GURS, 2019b) in funkcionalne regije (FR) modelirane po metodah CURDS in Intramax (lastni izračun).*

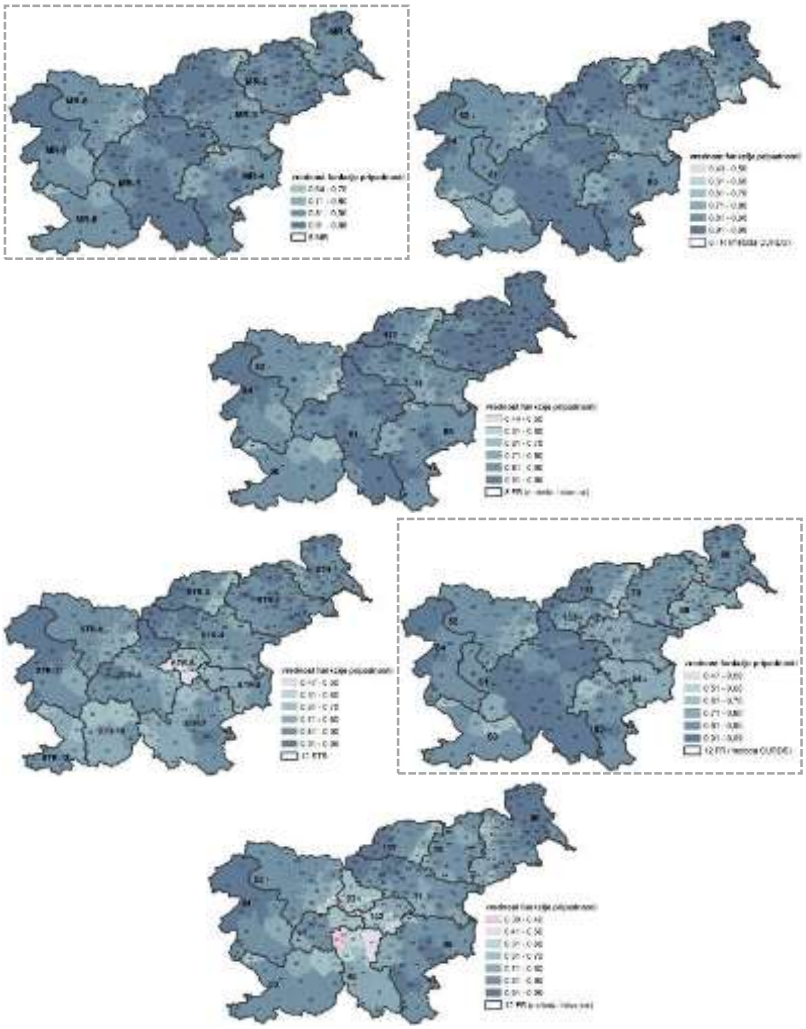



*Slika 2: Primerjava regij na makro ravni - makro regije (MR, Plut, 1999), statistične regije (STR, SURS, 2019a; GURS, 2019b) in funkcionalne regije (FR) modelirane po metodah CURDS in Intramax (lastni izračun).*

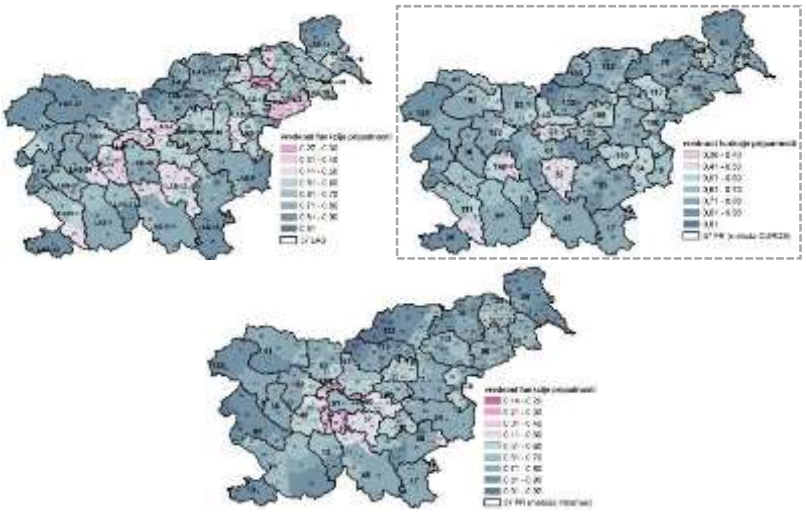



*Slika 3: Primerjava regij na mikro ravni – lokalne akcijske skupine (MKGP, 2019) in funkcionalne regije (FR) modelirane po metodah CURDS in Intramax (lastni izračun).*

Iz slik 2 in 3 je razvidno, da s strani politike (SURS, 2019a; MKGP, 2019) izbrani regionalizaciji nista optimalni gleda na podporo tokovom delavcev. Na sliki 4 so prikazani podrobni rezultati vrednotenja regij po pristopu mehkih množic, kjer smo vrednotili pripadnost občin posamezni regiji. Višje vrednosti funkcije pripadnosti (temnejši toni) označujejo boljšo funkcionalno zaokroženo regijo. Na ravni osmih regij je najbolj primerna členitev prostora kot jo je predlagala Plut (1999), na ostalih hierahičnih ravneh obravnave, tj. na ravni dvanajstih in 37 regij, pa dá najbolj primerne rezultate členitve prostora metoda CURDS.



*Slika 4: Vrednosti funkcije pripadnosti občine regiji po pristopu mehkih množic (lastni izračun); sestavi regij z najvišjimi vrednostmi funkcije pripadnosti so označeni s sivo črtkano obrobo 2018 (vir podatkov: GURS, 2019a, 2019b; lastni izračun)*



*Slika 4: Vrednosti funkcije pripadnosti občine regiji po pristopu mehkih množic (lastni izračun); sestavi regij z najvišjimi vrednostmi funkcije pripadnosti so označeni s sivo črtkano obrobo 2018 (vir podatkov: GURS, 2019a, 2019b; lastni izračun)*

**Zaključek**

Ugotavljamo, da obstajajo razlike med politično (uradno) določenimi členitvami statističnih regij ter lokalnih akcijskih skupin ter členitvami na funkcionalne regije v Sloveniji. Razlike naraščajo, ko členimo ozemlje Slovenije na nižjih hierarhičnih ravneh, to je, ko členimo Slovenijo na več manjših regij. Ujemanje osmih makro regij (Plut, 1999) z funkcionalnimi regijami je visoko. Na nižjih prostorskih ravneh pa funkcionalne regije, opredeljene z metodo CURDS, kažejo najvišjo kakovost funkcionalne regionalizacije.

Pri organizaciji dolgotrajne oskrbe v regiji na makro ravni je treba upoštevati členitev na osem makro regij (Plut, 1999) ali dvanajst funkcionalnih regij (lastni izračun), na mikro ravni pa 37 funkcionalnih regij, pri čemer naj bodo funkcionalne regije modelirane po metodi CURDS.

V prihodnje je smiselno proučiti še druge (hierarhične) sestave funkcionalnih regij z metodo CURDS. S spreminjanjem parametrov kriterialne funkcije je sicer mogoče neposredno nadzorovati število modeliranih regij glede na socialno infrastrukturo, ki jih pokriva. V sklopu dolgotrajne oskrbe pa je število regij odvisno predvsem od višine investicij v objekte v (funkcionalnih) regijah.

**Zahvala:** Avtorja prispevka se zahvaljujeta Javni agenciji za raziskovalno dejavnost Republike Slovenije za delno sofinanciranje študije iz državnega proračuna v okviru temeljnega raziskovalnega projekta Razvoj socialne infrastrukture in storitev za izvajanje dolgotrajne oskrbe v skupnosti (J6-9396).

## Literatura in viri


Brown, P. J. B., Hincks, S. (2008). A framework for housing market area delineation: Principles and application. Urban Studies, 45 (11), 2225–2247. DOI: https://doi.org/10.1177/0042098008095866

Brown, P. J. B., Pitfield, D. E. (1990). The Intramax derivation of commodity market structures from freight flow data, Transportation Planning and Technology, 15 (1), 59–81. DOI: https://doi.org/10.1080/03081069008717440

Casado-Díaz, J. M. (2000). Local labour market areas in Spain: A case study, Regional Studies, 34 (9), 843–856. DOI: https://doi.org/10.1080/00343400020002976

Casado-Díaz, J. M. (2003). The use of commuting data to define local labour market areas and urban areas in Spain. Alicante, University of Alicante: 28 str., http://rua.ua.es/dspace/bitstream/10045/2671/1/Casado-D%C3%ADaz%20%28Umea%202003%29.pdf, pridobljeno 1. 12. 2018.

Casado-Díaz, J. M., Coombes, M. G. (2011). The delineation of 21st century local labour market areas: a critical review and a research agenda, Boletín de la Asociación de Geógrafos Españoles, 57, 7–32.

Coombes, M. G., Bond, S. (2008). Travel-to-Work Areas: the 2007 review (London: Office for National Statistics), 58 str, http://www.istat.it/it/files/2014/12/final_TTWA_report.doc, pridobljeno 17. 9. 2018.

Coombes, M. G., Green, A. E., Openshaw, S. (1986). An efficient algorithm to generate official statistical reporting areas: The case of the 1984 travel-to-work-areas revision in Britain, Journal of the Operational Research Society, 37 (10), 943–953. DOI: https://doi.org/10.2307/2582282

Drobne, S. (2016). Model vrednotenja števila in območij funkcionalnih regij, doktorska disertacija (A model evaluating the number and areas of functional regions, doctoral thesis) (Ljubljana: Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo, samozaložba S. Drobne), 174 str., http://drugg.fgg.uni-lj.si/5557/, pridobljeno 15. 8. 2019.

Drobne, S. (2020). Kakovost funkcionalne regionalizacije po metodah CURDS in Intramax na makro ravni : študija primera za Slovenijo. Geodetski vestnik, 64 (1), 13-32. DOI: 10.15292/geodetski-vestnik.2020.01.13-32

Drobne, S., Bogataj, M. (2012a). Metoda opredelitve števila funkcionalnih regij: aplikacija na ravneh NUTS 2 in NUTS 3 v Sloveniji = A method to define the number of functional regions: an application to NUTS 2 and NUTS 3 levels in Slovenia. Geodetski vestnik, 56 (1), 105–150. DOI: https://doi.org/10.15292/geodetski-vestnik.2012.01.105-127

Drobne, S., Bogataj, M. (2012b). Evaluating functional regions. V: Babić, Z. et al. (ur.). 14th International conference on operational research (KOI 2012) in Trogir, Croatia, September 26–28, 2012. Croatian operational research review 3, str. 14–26, dostopno na hrcak.srce.hr/file/142254, pridobljeno 17. 11. 2018.

Drobne, S., Bogataj, M. (2014). Regions for servicing old people: Case study of Slovenia, Business systems research journal, 5 (3), 19–36. DOI: https://doi.org/10.2478/bsrj-2014-0017

Drobne, S., Bogataj, M. (2015). Optimal allocation of public service centres in the central places of functional regions. IFAC-PapersOnLine, 48 (3), 2362–2367. DOI: https://doi.org/10.1016/j.ifacol.2015.06.441

Drobne, S., Borovnik, L., Lakner, M. (2018). Lokalna območja delovne mobilnosti v Sloveniji. V: Ciglič, R. (ur.), et al., Pokrajina v visoki ločljivosti, GIS v Sloveniji, Ljubljana: Založba ZRC, str. 153–164.,

Eurostat (2017). Labour Market Areas, https://ec.europa.eu/eurostat/cros/content/labour-market-areas_en, pridobljeno 17. 6. 2019.

Feng, Z. (2009) Fuzziness of Travel to Work Areas, Regional Studies, 43 (5), 707–720. DOI: https://doi.org/10.1080/00343400801922806

Fischer, M. M., Essletzbichler, J., Gassler, H., Trichtl, G. (1993). Telephone communication patterns in Austria – A comparison of the IPFP-based graph-theoretic and the Intramax approaches. Geographical Analysis 25 (3), 224–233. DOI: https://doi.org/10.1111/j.1538-4632.1993.tb00293.x

Franconi, L., Ichim, D'Alò, M. (2017). Labour Market Areas for territorial policies: Tools for a European approach. Istat: 7 str., https://content.iospress.com/download/statistical-journal-of-the-iaos/sji160343?id=statistical-journal-of-the-iaos%2Fsji160343, pridobljeno 20. 11. 2017.

GURS (2019a). Prostorski podatki o občinah v Sloveniji 2019. Digitalni podatki. (Ljubljana: Geodetska uprava RS), https://www.e-prostor.gov.si/, pridobljeno 1. 5. 2019.

GURS (2019b). Prostorski podatki o statističnih regijah v Sloveniji 2019. Digitalni podatki. (Ljubljana: Geodetska uprava RS), https://www.e-prostor.gov.si/, pridobljeno 1. 5. 2019.

Halás M, Klapka P, Hurbánek P, Bleha B, Pénzes J, Pálóczi G. (2018). A definition of relevant functional regions for international comparisons: The case of Central Europe. Area, 00, 1–11. DOI: https://doi.org/10.1111/area.12487

Jaegal, Y. (2013). Delineating housing market areas in the Seoul metropolitan area using a geo-computational approach. Journal of the Association of Korean Geographers, 2 (1), 7–20.

Klapka, P., Halás, M., Erlebach, M., Tonev, P., Bednář, M. (2014). A multistage agglomerative approach for defining functional regions of the Czech Republic: The use of 2001 commuting data, Moravian Geographical Reports, 22 (4), 2–13. DOI: https://doi.org/10.1515/mgr-2014-0019

Kohl, T., Brouver, A. E. (2014). The development of trade blocs in an era of globalisation. Environment and Planning A 46, 7: 1535–1553. DOI: https://doi.org/10.1068/a46261

Koo, H. (2012) Improved hierarchical aggregation methods for functional regionalization in the Seul metropolitan area. Journal of the Korean Cartographic Association, 12 (2), 25–35.

Krygsman, S., De Jong, T., Nel, J. (2009). Functional transport regions in South Africa: An examination of national commuter data. V: Proceedings of the 28th South African transport conference (SATC 2009), Pretoria, South Africa, June 6–9, 2009. Pretoria, Academic Press: 144–154,

http://repository.up.ac.za/bitstream/handle/2263/11952/Krygsman_Functional%282009%29.pdf, pridobljeno 11. 9. 2018.

Landré, M. (2012). Geoprocessing journey-to-work data: delineating commuting regions in Dalarna, Sweden. ISPRS International Journal of Geo-Information, 1 (3), 294–314.

Landré, M., Håkansson, J. (2013). Rule versus Interaction function: evaluating regional aggregations of commuting flows in Sweden, European Journal of Transport and Infrastructure Research, 13 (1), 1–19.

Masser, I., Brown, P. J. B. (1975). Hierarchical aggregation procedures for interaction data. Environment and Planning A, 7 (5), 509–523. DOI: https://doi.org/10.1068/a070509

Masser, I., Brown, P. J. B. (1977). Spatial representation and spatial interaction. Papers of the Regional Science Association, 38 (1), 71–92. DOI: https://doi.org/10.1111/j.1435-5597.1977.tb00992.x

MKGP (2019). European Agricultural Fund for Rural Development. Ljubljana: Ministrstvo za kmetijstvo, gozd in prehrano, https://www.program-podezelja.si/en/43-news/593-30-9-2016-first-decisions-on-the-approval-of-local-action-groups-for-2014-2020-in-slovenia-issued, pridobljeno 1. 5. 2019.

Mitchell, W., Stimson, R. (2010). Creating a new geography of functional economic regions to analyse aspects of labour market performance in Australia. V: Dalziel, P. (ur.). Innovation and regions: Theory, practice and policy. Lincoln, New Zealand: AERU Research Unit: 178–220.

Mitchell, W., Watts, M. (2010). Identifying functional regions in Australia using hierarchical aggregation techniques. Geographical Research, 48 (1), 24–41. DOI: https://doi.org/10.1111/j.1745-5871.2009.00631.x

Mitchell, W., Baum, S., Flanagan, M., Hannan, M. (2013). CofFEE functional economic regions. AURIN project. Centre of Full Employment and Equity. Darwin, Australia, http://e1.newcastle.edu.au/coffee/functional_regions/, pridobljeno 19. 1. 2018.

Nel, J. H., Krygsman, S. C., De Jong, T. (2008). The identification of possible future provincial boundaries for South Africa based on an Intramax analysis of journey-to-work data. Orion, 24 (2), 131–156. DOI: https://doi.org/10.5784/24-2-64

Palttila, Y. (2017). Labour Market Areas. Final Technical report of the Finnish project. Statistics Finland: 37 str., https://ec.europa.eu/eurostat/cros/system/files/lma_final_technical_report_finland.pdf, pridobljeno 27. 10. 2017.

Plut, D. (1999). Zasnova členitve Slovenije na pokrajine s pomočjo trajnostno sonaravnih izhodišč, V: Vrišer, I. (ur.) Pokrajine v Sloveniji (Ljubljana: Vlada RS, Služba za lokalno samoupravo), str. 65–73.

Schmitt, J., van der Valk, J. (2017). Cross border Labour Market Area's in the case of the Netherlands. Statistics Netherlands (CBS): 17 str.

SURS (2019a). Pojasnila o teritorialnih spremembah statističnih regij. Ljubljana, Statistični urad Republike Slovenije, http://www.stat.si/dokument/5449/Pojasnila-spremembah-statisticnih-regij.pdf, pridobljeno 20. 12. 2019.

SURS (2019b). Delovno aktivno prebivalstvo (brez kmetov) po občinah prebivališča in občinah delovnega mesta po spolu, občine, Slovenija, letno, pregled po občinah (Ljubljana: Statistični urad Republike Slovenije), https://pxweb.stat.si/SiStat/, pridobljeno 15. 6. 2019.

Uredba o standardni klasifikaciji teritorialnih enot Slovenije. Uradni list RS, št. 28/2000. http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED471, pridobljeno 11. 12. 2019.

Uredba (ES) št. 1059/2003 Evropskega parlamenta in Sveta z dne 26. maja 2003 o oblikovanju skupne klasifikacije statističnih teritorialnih enot (NUTS). UL EU 14/Zv. 1, 2003: 196–238. http://www.stat.si/dokument/8475/Uredba-1059-2003-nuts.pdf, pridobljeno 11. 12. 2019.

Uredba (ES) št. 1888/2005 Evropskega parlamenta in Sveta o spremembi Uredbe (ES) št. 1059/2003 Evropskega parlamenta in Sveta. Ur. l. EU, L 309, 25.11.2005, 1–8. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:309:0001:0008:SL:PDF, pridobljeno 11. 12. 2019.

Watts, M. (2009). Rules versus hierarchy: An application of fuzzy set theory to the assessment of spatial grouping techniques, V: Kolehmainen, M. et al. (ur.) Adaptive and naturals computing algorithms (Berlin, Heidelberg: Springer-Verlag), str. 517–526.

Watts, M. (2013). Assessing Different Spatial Grouping Algorithms: An Application to the Design of Australia's New Statistical Geography, Spatial Economic Analysis, 8 (1), 92–112. DOI: https://doi.org/10.1080/17421772.2012.753637

Vrišer, I. (1974). Mesta in urbano omrežje v SR Sloveniji. Značilnosti njihovega razvoja in družbeno gospodarskega pomena s posebnim ozirom na mala mesta. Geografski zbornik, 14 (3), 179–337.

# Guarantee Schemes for Loans to Investors In Community Social Infrastructure For Older People

**David Bogataj**

University of Ljubljana-SEB and INRISK Institute
david.bogataj@gmail.com

**Abstract**

Europe, including Slovenia are facing increasing demand for investment in social infrastructure for the care of the older adults with declined functional capabilities, in particular to support the sustainable and inclusive development of care for the ageing cohorts. One of the key tasks is the development of appropriate financial instruments and the selection of financial intermediaries to channel investment in the necessary social infrastructure for aging cohorts of citizens. Slovenia should also provide communities living in their family or other adapted housing with affordable rent in more favorable environments, appropriate rental or owner-occupied housing, and provide financial support for the development of innovative forms of living. EU Member States have the possibility to enter into investment activities through guarantee schemes. These schemes also allow the use of EIB funds. One of the most important findings is that guarantee schemes have a minimal impact on government budgets and the budgetary constraints, and allow for significantly cheaper financing of the development of social infrastructure for the care of the elderly. In this paper, we present European guarantee schemes for investments in social infrastructure for the older adults, which provide a mitigation of various ever-present but sometimes unforeseen risks. Well-designed guarantee schemes will help borrowers and housing organizations registered as non-profit housing organizations to obtain more favorable loans. Given the rapidly growing cohorts of potential users and thus the ever-increasing demand dynamics shown by our projections, the risks associated with guarantee schemes can also be avoided by improving these schemes and increasing their control, as discussed in more detail in this paper.

Keywords: guarantee schemes, geogerontology, investment, local communities.

# Garancijske sheme za investicije v socialno infrastrukturo za oskrbo in bivanje starejših odraslih


## Povzetek

Evropa, vključno s Slovenijo, se sooča z vse večjim povpraševanjem po naložbah v socialno infrastrukturo za oskrbo starejših odraslih z zmanjšanimi funkcionalnimi sposobnostmi. Pri tem sta ključna razvoj ustreznih finančnih instrumentov in izbira finančnih posrednikov za usmerjanje naložb v potrebno socialno infrastrukturo za starajoče se kohorte državljanov. Slovenija bi morala skupnostim, ki živijo v lastnih družinskih ali drugih prilagojenih stanovanjih, zagotoviti tudi dostopno najemnino v ugodnejšem okolju, ustrezna najemna ali lastniška stanovanja ter finančno podpreti razvoj inovativnih oblik bivanja. Države članice EU imajo možnost vstopa v investicijsko dejavnost prek garancijskih shem. Te sheme omogočajo tudi uporabo sredstev EIB. Pomembno je, da imajo garancijske sheme minimalen vpliv na državne proračune in proračunske omejitve ter omogočajo bistveno cenejše financiranje razvoja socialne infrastrukture za oskrbo starejših. V tem prispevku predstavljamo evropske garancijske sheme za naložbe v socialno infrastrukturo za starejše, ki zagotavljajo ublažitev različnih vedno prisotnih, vendar včasih nepredvidenih tveganj. Dobro oblikovane garancijske sheme bodo posojilojemalcem in stanovanjskim organizacijam, registriranim kot neprofitne stanovanjske organizacije, pomagale pridobiti ugodnejša posojila. Glede na hitro rastoče kohorte potencialnih uporabnikov in s tem vedno večjo dinamiko povpraševanja, ki jo kažejo naše projekcije, se je tveganjem, povezanim z garancijskimi shemami, mogoče izogniti tudi z izboljšanjem teh shem in povečanjem njihovega nadzora, kot je podrobneje obravnavano v tem dokumentu.



Ključne besede: garancijske sheme, geogerontologija, naložbe, lokalne skupnosti.


## Uvod

Starejši odrasli so najhitreje rastoča demografska skupina v Evropski uniji (EU). Gre za raznoliko skupino, ki vključuje aktivne in invalidne osebe, ki potrebujejo ustrezno prilagojena, starosti prijazna stanovanja. Takšna stanovanja morajo biti prilagojena vse manjšim funkcionalnim sposobnostim stanovalcev ter zagotavljati integrirane storitve zdravstvenega in socialnega varstva v skupnosti. Stanovanja, namenjena oskrbi in bivanju starejših odraslih, zaradi svojih pozitivnih učinkov na družbo spadajo med socialno infrastrukturo. V zadnjih desetih letih pa so države članice EU znatno zmanjšale javne naložbe v cenovno dostopna in socialna stanovanja, s tem pa tudi v stanovanja, namenjena starostnikom. Tretjina gospodinjstev v državah članicah EU za stanovanja porabi več kot 40 % svojega razpoložljivega dohodka. Naložbe v cenovno dostopna stanovanja in druge vrste socialne infrastrukture v državah članicah EU so pod ravnjo, ki je potrebna za zagotavljanje stanovanjskih storitev in oskrbe starajočega se prebivalstva. Poleg tega ne upoštevajo ustrezno njenih spreminjajočih se potreb. Glede na študijo, ki jo je podprla Evropska komisija, znaša vrzel v naložbah v socialno infrastrukturo vsaj 100 milijard EUR na leto,

skupna vrzel pa 1,5 milijarde EUR za obdobje 2018-2030 (Fransen in drugi, 2018). Skupnostno zagotavljanje socialnih stanovanj, kjer socialni stanovanjski sklad razvijajo in upravljajo socialna podjetja, lahko dopolnjuje ali celo nadomešča zagotavljanje javnih socialnih stanovanj, ki jih razvijajo in upravljajo lokalni organi ali nacionalna vlada.

Pri spodbujanju investicij v socialno infrastrukturo sta ključna razvoj ustreznih finančnih instrumentov in izbira finančnih posrednikov za usmerjanje naložb v potrebno socialno infrastrukturo za starajoče se kohorte državljanov. Države članice EU imajo možnost vstopa v investicijsko dejavnost prek garancijskih shem. Te sheme omogočajo tudi uporabo sredstev Evropske investicijske banke. Pomembno je, da imajo garancijske sheme minimalen vpliv na državne proračune in proračunske omejitve ter da omogočajo bistveno cenejše financiranje razvoja socialne infrastrukture za oskrbo starejših. V tem prispevku predstavljamo posamezne evropske garancijske sheme za naložbe v socialno infrastrukturo za starejše, ki zagotavljajo ublažitev različnih vedno prisotnih, vendar včasih nepredvidenih tveganj. Analizirali smo literaturo o vlogi garancijskih shem pri zagotavljanju stanovanj v Evropi. Garancijske sheme za socialna stanovanja poznajo na Nizozemskem, v Švici, Franciji, na Irskem in v Združenem kraljestvu. Med navedenimi državami smo podrobneje preučili Združeno kraljestvo in Nizozemsko. Za obe državi je značilen tržni pristop k razvoju socialnih stanovanj in odločilna vloga specializiranih finančnih institucij, ki zagotavljajo financiranje in nacionalne jamstvene sheme (Lawson, 2013). Dobro oblikovane garancijske sheme bodo posojilojemalcem in stanovanjskim organizacijam, registriranim kot neprofitne stanovanjske organizacije, pomagale pridobiti ugodnejša posojila. Glede na hitro rastoče kohorte potencialnih uporabnikov in s tem vedno večjo dinamiko povpraševanja, ki jo kažejo naše projekcije, se je tveganjem, povezanim z garancijskimi shemami, mogoče izogniti tudi z izboljšanjem teh shem in povečanjem njihovega nadzora, kot je podrobneje obravnavano v tem dokumentu.

## Pregled pomena garancijskih shem pri zagotavljanju socialne infrastrukture za oskrbo in bivanje starejših odraslih po posameznih državah

### Združeno kraljestvo (UK)

#### Stanovanja za starejše v Združenem kraljestvu

V zadnjih desetletjih se je pomen zagotavljanja specializiranih stanovanj za starejše s strani lokalnih in nacionalnih oblasti v Združenem kraljestvu precej spremenil. V šestdesetih in sedemdesetih letih prejšnjega stoletja se je njihova gradnja spodbujala kot cenejša alternativa oskrbovanim domovom, ki je stanovalcem zagotavljala večjo stopnjo avtonomije. Vendar pa je vstop zasebnega sektorja na trg stanovanj za starejše v osemdesetih letih prejšnjega stoletja povzročil preveliko ponudbo specializiranih stanovanj za starejše odrasle. Takrat je bilo v Angliji in Walesu nekaj več kot 500 000 specializiranih domov za starejše. V skladu z zakonom NHS and Community Care Act iz leta 1990 je oskrba starejših v njihovem obstoječem domu postala prednostna naloga. Posledično se je zmanjšala vladna podpora za specializirane stanovanjske objekte za starejše. Zato je število

stanovanjskih enot za starejše leta 2010 ostalo bolj ali manj nespremenjeno na ravni 533.000, kar je privedlo do opaznega pomanjkanja ponudbe glede na povpraševanje (Shelter, 2012). Do leta 2030 naj bi povpraševanje preseglo ponudbo za približno 160.000 stanovanj, do leta 2050 pa še za dodatnih 376.000 stanovanj (International Longevity Centre, 2016). Pri tem pa le dva odstotka stanovanjskega fonda v Združenem kraljestvu (533.000 stanovanj) izpolnjujeta potrebe starejših ljudi. Po drugi strani je program Shared Ownership and Affordable Homes, kot eden od ključnih programov Homes England za dostopna stanovanja, med letoma 2016 in 2021 zagotovil kapitalska nepovratna sredstva le za 8000 stanovanj za oskrbovana in najemna stanovanja za starejše (HCA, 2016).

Večina specializiranih stanovanj je namenjena socialnemu najemu, nekaj več kot 100.00 pa nakupu (Pannell in drugi, 2012). Pri tem 90 % specializiranih stanovanj predstavljajo varovana stanovanja. Ponudba specializiranih stanovanj znaša 73 enot na 1.000 starejših gospodinjstev. Specializirana stanovanja večinoma upravljajo stanovanjska združenja (59 %) in lokalni organi (24 %). Zasebni sektor zagotavlja manjše število stanovanj (10 %), ki so skoraj izključno namenjena prodaji pravice do posesti za čas 40 do 999 let (ang. *lease tenure*). Zasebni sektor ponuja več varovanih stanovanj, medtem ko oskrbovana stanovanja (kjer je invenzivnost oskrbe večja) v večji meri zagotavlja socialni sektor. Nekaj specializiranih stanovanj (7 %) zagotavljajo tudi zavetišča (ang. *Almhouses*), dobrodelni/neprofitni ponudniki in zadruge (Harding in drugi, 2018).

Wood (2013) opozarja, da je kronično pomanjkanje specializiranih stanovanj za starejše, zgrajenih z upoštevanjem fizičnih in socialnih potreb starejših dolgotrajen problem, ki se je še povečal zaradi demografskih sprememb. V zvezi s tem ugotavlja naslednje trende:

1) Četrtino (25 %) starejših od 60 let bi zanimal nakup nepremičnine, prilagojene potrebah starejših odraslih, kar pomeni 3,5 milijona ljudi na nacionalni ravni.
2) Več kot polovica (58 %) ljudi, starih 60 let in več, bi se rada preselila.
3) Več kot polovica (57 %) tistih, ki se želijo preseliti, želi zmanjšati velikost stanovanja vsaj za eno spalnico. Med starejšimi, ki trenutno živijo v stanovanjih s tremi, štirimi in petimi spalnicami, pa je takih 76 %.
4) Triintrideset odstotkov starejših od 60 let se želi preseliti v manjše stanovanje, kar pomeni 4,6 milijona starejših od 60 let na nacionalni ravni.
5) Več kot štiri petine (83 %) starejših od 60 let, ki živijo v Angliji (ne na Škotskem, v Walesu ali na Severnem Irskem), ima lasten dom, 64 % pa jih ima dom brez hipoteke.
6) Nepremičnine starejših tako znašajo 1,28 bilijona funtov, od tega 1,23 bilijona funtov neobremenjenega s hipoteko. To je veliko več kot znesek prihrankov, ki jih ima ta starostna kohorta in ki znašajo 769 milijard funtov.
7) Če bi se lahko preselila le polovica od 58 % starejših od 60 let, ki jih zanima selitev (zmanjšanje velikosti in drugo), bi se sprostilo za približno 356 milijard funtov premoženja, od tega skoraj polovica stanovanj s tremi spalnicami in 20 % stanovanj s štirimi spalnicami.
8) Če bi lahko tisti, ki želijo kupiti nepremičnino za upokojence, to storili, bi se sprostilo 307 milijard funtov vrednosti stanovanj.
9) Če bi se lahko preselila le polovica tistih, ki si želijo živeti v manjših stanovanjih, bi se lahko preselilo 4 milijone starejših in na voljo bi bilo 3,5 milijona stanovanj.

### Zelena knjiga o socialnih stanovanjih

Leta 2018 je vlada Združenega kraljestva objavila novo zeleno knjigo o socialnih stanovanjih, ki določa pet načel:

- varen in dostojen dom, ki je temelj občutka varnosti in možnosti za življenje;
- izboljšanje in pospešitev reševanja pritožb;
- krepitev vloge prebivalcev in zagotavljanje, da se njihov glas sliši in da so najemodajalci odgovorni;
- odpravljanje stigmatizacije in izpodbijanje stereotipov, ki obstajajo o prebivalcih in njihovih skupnostih, ter,
- gradnja socialnih stanovanj, ki jih potrebujemo, in zagotavljanje, da so ta stanovanja lahko odskočna deska za lastništvo stanovanj.

Ocenjuje se, da je približno 14 odstotkov socialnih stanovanj oskrbovanih stanovanj, kar pomeni, da so to stanovanja, ki pomagajo ljudem, tudi starejšim, živeti neodvisno. Sedemindvajset odstotkov najetih socialnih gospodinjstev predstavljajo upokojenci. Skoraj tri četrtine najemnikov socialnih stanovanj spada v spodnjih 40 odstotkov dohodkovne porazdelitve (Ministry for Housing, Communities and Local Government, 2018).

### Stanovanjska združenja

Sektor socialnih stanovanj je raznolik del stanovanjskega trga, na katerem je veliko različnih ponudnikov. Socialna stanovanja zagotavljajo lokalni organi in zasebni registrirani ponudniki, predvsem stanovanjska združenja kot socialna podjetja, ki prispevajo k razvoju cenovno dostopnih in socialnih stanovanj. V skladu z Zakonom o stanovanjskih združenjih iz leta 1985 je stanovanjsko združenje društvo, organ zaupnikov ali podjetje,

a) ki je ustanovljeno za razvoj, gradnjo, izboljšanje ali upravljanje oziroma omogočanje ali spodbujanje gradnje ali izboljšanja stanovanj in,
b) ki ne posluje z dobičkom ali katerega statut ali pravila prepovedujejo izdajo kapitala z obrestmi ali dividendami, ki presegajo stopnjo, ki jo določi ministrstvo za finance, z razlikovanjem ali brez razlikovanja med stanovanjem, ki spada v okvir neprofitnih namenov, in posojilnim kapitalom.

Zato izraz "stanovanjsko združenje" vključuje vse neprofitne organizacije, ki zagotavljajo stanovanja ali storitve, povezane s stanovanji.

Ker lokalne oblasti omejene v pridobivanju posojil za gradnjo, od leta 1990 ustanavljajo stanovanjska združenja za prenos stanovanjskega fonda in spodbujanje novih gradbenih projektov (Harding in drugi, 2018). V Angliji in Walesu je približno 1.600 stanovanjskih združenj različnih velikosti, vrst in izvora, ki imajo v lasti približno tri milijone stanovanj ter zagotavljajo dom in zavetje več kot šestim milijonom ljudi. Približno 65 odstotkov socialnega stanovanjskega fonda upravljajo in imajo v lasti stanovanjska združenja, ki zaposlujejo približno 300.000 ljudi. Stanovanjska združenja najemajo stanovanja po nižjih in tržnih cenah ter jih prodajajo neposredno in v okviru različnih "nizkocenovnih programov lastništva stanovanj". Ta sektor zagotavlja tudi stanovanjske storitve, storitve oskrbe na domu ter oskrbne domove in druge oblike stanovanj z oskrbo (Handy in Alden, 2018, str.

46). Leta 2017 je imelo od približno 1.500 stanovanjskih združenj v Angliji 319 združenj z vsaj 1.000 stanovanji v lasti 95 % stanovanjskega fonda. Nekatera združenja imajo več kot 1 milijardo GBP prometa in upravljajo več kot 100.000 stanovanj, medtem ko večina združenj upravlja manj kot 250 stanovanj. Vpliv večjih stanovanjskih združenj z drugačno kulturo na večino je zato nesorazmeren.

Stanovanjska združenja se trenutno soočajo z zmanjšanim javnim financiranjem: javno financiranje splošnih najemnih stanovanj, vključno s specializiranimi stanovanji za starejše odrasle, se je z 11,4 milijarde funtov v letu 2009 zmanjšalo na 5,3 milijarde funtov v letu 2015. Zato se število na novo zgrajenih stanovanjskih enot zmanjšuje, čeprav je bilo v obdobju 2016-2017 v sektorjih stanovanjskih združenj in lokalnih oblasti zgrajenih več kot 100 000 stanovanj. Da bi zadostili naraščajočemu povpraševanju po stanovanjih, pa bi bilo treba v naslednjih desetih letih zgraditi vsaj 250.000 stanovanj na leto (Handy in Alden, 2018, str. 50).

Stanovanjska združenja imajo bolj omejena sredstva za nakup zemljišč za gradnjo kot zasebni vlagatelji. Državne subvencije za gradnjo, ki so v devetdesetih letih prejšnjega stoletja predstavljale 75 odstotkov sredstev stanovanjskih združenj za gradnjo, v zadnjih letih predstavljajo le 14 odstotkov vseh sredstev. Zaradi teh trendov se število socialnih stanovanj (tj. tistih, ki se najemajo po 60 odstotkih tržne cene) zmanjšuje, medtem ko se število dostopnih (po 80 odstotkih tržne cene) in tržnih stanovanj (po 100 odstotkih tržne cene) povečuje. Nekatera stanovanjska združenja so celo opustila svoj prvotni cilj zagotavljanja cenovno dostopnih stanovanj in prenehala delovati kot neprofitna organizacija (Harding in drugi, 2018).

### Financiranje stanovanjske gradnje

Najpomembnejša dejavnost stanovanjskih združenj je gradnja novih stanovanj in izvajanje projektov obnove. Stanovanjska združenja gradijo nova stanovanja za najem in prodajo ter za kritje stroškov gradnje uporabljajo različne mehanizme financiranja. Glavne oblike prihodkov stanovanjskih združenj so najemnine in stroški storitev. Poleg tega stanovanjska združenja dajejo subvencije za podporo ljudem ter plačila za oskrbo in z njo povezane stroške nastanitve. Nepovratna sredstva prejemajo od Agencije za domove in skupnosti (HCA - preimenovana v Homes England), v Londonu pa od oblasti Velikega Londona (Greater London Authority - GLA). Nekatera so vključena v komercialna podjetja, ki dobiček iz dejavnosti reinvestirajo v svoj osnovni namen zadovoljevanja stanovanjskih potreb. Uporabljajo tudi prodajo in povratni najem ter druge alternativne mehanizme financiranja, da razširijo svoje možnosti financiranja.

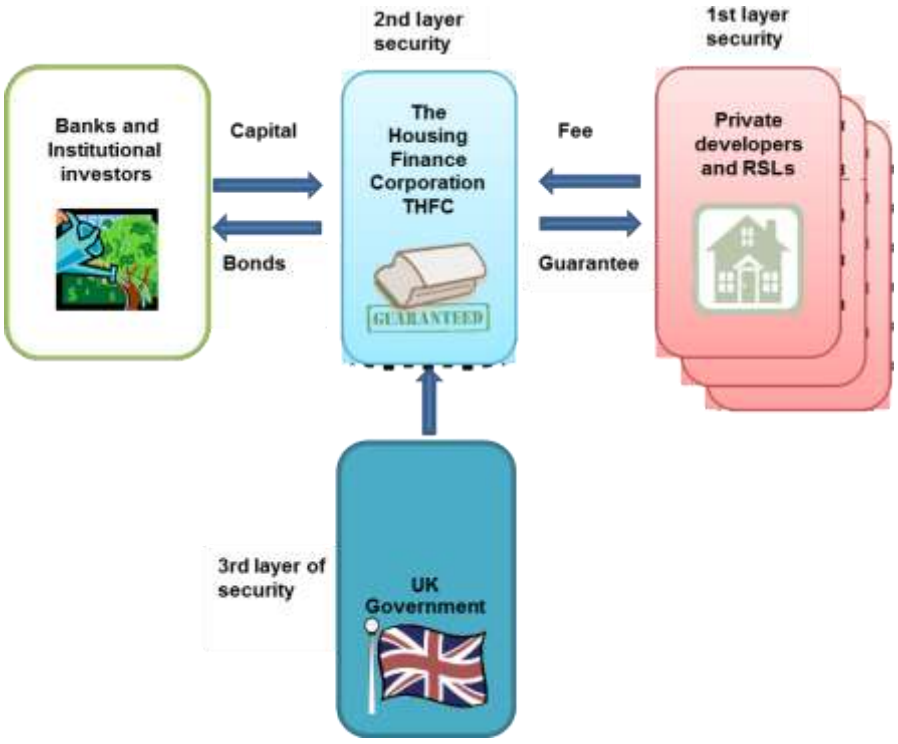
Znesek posojila, ki ga lahko pridobi stanovanjska zadruga, je običajno predpisan v njenih pravilih ali memorandumu in statutu. Stanovanjska združenja so si izposojala sredstva z uporabo številnih finančnih produktov, kot so standardni komercialni hipotekarni produkti (dolgoročna, srednjeročna in kratkoročna zavarovana posojila pri bankah in gradbenih družbah), nezavarovano razvojno financiranje ter financiranje z obveznicami in zasebno plasiranje, pri čemer je slednje na voljo za večja združenja, ki želijo pridobiti znatna sredstva.

Stanovanjska združenja morajo ves čas izpolnjevati zahteve in dogovore v zvezi s posojili. Tipične pogodbe vključujejo zahteve glede zadolževanja, letnega presežka, kritja obresti in kritja sredstev, če jih naštejemo le nekaj. Za namene spremljanja

obstajajo tudi zahteve glede računovodskih in finančnih poročil (Handy in Alden, 2018).

Garancijske sheme za zagotavljanje socialnih stanovanj

V Združenem kraljestvu so bile garancijske sheme za gradnjo socialnih stanovanj vzpostavljene junija 2013. Družba Housing Finance Corporation je pridobila licenco za izdajanje garancij v imenu vlade. Garancije pomagajo stanovanjskim združenjem privabiti vlagatelje in ustvariti zaupanje na trgu. Cilj garancijskih shem v Združenem kraljestva je zagotoviti "investicijsko financiranje" in ne bolj tveganega razvojnega financiranja. Da bi omejili izpostavljenost vlade, pokrivajo garancije le 80 odstotkov posojil iz sheme, investitor pa mora prispevati 20 odstotkov svojega lastniškega kapitala. Obstajata dve različici sheme - ena za cenovno dostopna stanovanja in druga za zasebni najemni sektor (Lawson, 2013).




Vir: Lawson, 2013.

*Slika 1: Struktura garancijskih shem za zasebna in cenovno dostopna najemna stanovanja*

Nizozemska

Stanovanja za starejše na Nizozemskem

Nizozemska je majhna, gosto naseljena država z visokim življenjskim standardom. Tako kot v drugih evropskih državah se prebivalstvo stara. Leta 2012 je bilo na Nizozemskem skupno 7,3 milijona stanovanj; 60 % jih je v zasebni lasti, 9 % v zasebnem najemu, 31 % pa je socialnih ali javnih najemnih stanovanj (Smiths in drugi, 2014). Zaradi gostote prebivalstva se je takoj po drugi svetovni vojni hiše, ki so bile v lasti ali v najemu starejših, potrebovalo za mlade družine. V petdesetih in

šestdesetih letih je vlada gradila institucionalne domove za starejše. Spodbujala jih je, naj se tja preselijo, četudi niso potrebovali oskrbe (von Egdon, 1997). Ker so se stanovanjske težave na Nizozemskem počasi omilile, se je vladna stanovanjska politika osredotočila na življenje v skupnosti in sledila željam starejših, da bi čim dlje ostali v lastnem domu. Posledično se odstotek starejših oseb v domskem varstvu zmanjšuje - skoraj 95 % vseh starejših državljanov živi samostojno. Na Nizozemskem so zaprli veliko institucionalnih domov za starejše, preostali pa se združujejo z oskrbovanimi stanovanji (Verbeek-Oudijk in van Campen, 2017). Čeprav se od gospodarske krize leta 2008 gradi manj novih domov, se potreba po novih stanovanjih za starejše povečuje, po ocenah za 44.000 domov letno (Ministry of Health, Welfare and Sport, e-vir).

Starejši odrasli imajo na Nizozemskem na voljo različne možnosti bivanja:

1. **Oskrba na domu:** oskrba na domu je namenjena starejšim osebam z invalidnostjo ali kronično boleznijo, kot je demenca. Nega na domu je lahko v različnih oblikah, vključno z nego, ki jo zagotavlja medicinska sestra. Ta del oskrbe se financira v okviru javnega zdravstvenega zavarovanja. Pri tem občina nudi gospodinjsko pomoč, vzdrževanje, pomoč pri dnevnih opravilih ali medicinske pripomočke, kot je invalidski voziček.
2. **Vseživljenske soseske:** starostnikom prijazne soseske imajo na voljo "stanovanja za celotno življenjsko dobo" in cenovno dostopna stanovanja za ljudi s potrebami po oskrbi. Na voljo je tudi zdravstveni center z zdravnikom, lekarna, organizacija za oskrbo na domu in oskrbovalec. V starejšim prijazni soseski je oskrba na domu zagotovljena podnevi in ponoči.
3. **Varovana stanovanja:** varovana stanovanja nudijo stanovalcem oskrbo in druge storitve, vključno s sistemom zdravstvenega opozarjanja, negovalci in gospodinjsko pomočjo. Nekatera varovana stanovanja nudijo tudi 24-urno oskrbo. V zasebnih stanovanjih starejši odrasli živijo samostojno, plačujejo najemnino ter imajo ločene pogodbe za bivanje in oskrbo.
4. **Oskrbovana stanovanja, varovana stanovanja z dodatno oskrbo:** oskrbovana stanovanja se običajno nahajajo na območju doma za ostarele. Nahajajo se na območju oskrbovanih stanovanj, kjer stanovalci živijo samostojno, kot da bi živeli v svojem domu, in plačujejo najemnino za stanovanje. Prebivalci lahko uporabljajo storitve in zmogljivosti doma za ostarele, kot so nujna zdravstvena oskrba, prehrana in dejavnosti.
5. **Kmetije Green Care:** Kmetije za zeleno oskrbo so posebna alternativna oblika zagotavljanja storitev oskrbe starejših, pri kateri so starejši odrasli vključeni v dnevno varstvo/oskrbo na kmetiji.
6. **Stanovanjski domovi za starejše**: priporočljivi so za tiste, ki potrebujejo 24-urno oskrbo in ki ne želijo ali se jim zdi nepraktično prejemati oskrbo na domu (Ministry of Health, Welfare and Sport, e-vir).

Na Nizozemskem je priljubljeno tudi bivanje v skupnostih za starejše. Te ponujajo vmesno rešitev za starejše, ki ne želijo živeti v institucionalnem okolju, vendar imajo radi družbo svojih vrstnikov. Prebivalci skupnosti živijo v svojih stanovanjih, skupaj pa izvajajo dejavnosti in se med seboj podpirajo. Prebivalci si tako delijo skupni prostor in se skupaj lotevajo dejavnosti, ne da bi pri tem žrtvovali svoje stanovanje in zasebnost (Rusinovic, van Bochove in van de Sande, 2019).

## Stanovanjska združenja na Nizozemskem

Na začetku dvajsetega stoletja je veliko prebivalcev Nizozemske zaradi hitre urbanizacije živelo v slabih razmerah, to pa je zahtevalo posredovanje države. Leta 1901 sprejeti Stanovanjski zakon je določal, da lahko stanovanjska združenja in fundacije, ki so dejavne samo na področju socialnih stanovanj, posedujejo dovoljenje in prejemajo subvencije za gradnjo najemnih socialnih stanovanj. Takšna stanovanja naj bi gradila stanovanjska združenja, upravljale pa naj bi jih občine. Stanovanjski zakon je uvedel tudi zahteve glede kakovosti in gradbene predpise, ki naj bi jih nadzorovale občine.

Stanovanjska združenja so zasebne organizacije z javno nalogo, ki mora biti v interesu socialnih stanovanj. Stanovanjski zakon iz leta 1901 stanovanjska združenja na Nizozemskem z zakonom zavezuje k izvajanju socialne dejavnosti Za pridobitev tega "socialnega" statusa mora stanovanjsko združenje delovati samo v stanovanjskem sektorju. Prednostna naloga stanovanjskih združenj je zagotavljanje stanovanj ljudem, ki si ga težko privoščijo zaradi svojih dohodkov ali drugih okoliščin. Število stanovanjskih združenj stalno narašča - leta 1890 jih je bilo l40, leta 1913 že 300, leta 1922 pa že skoraj 1350. V povprečju je imelo vsako od stanovanjskih zdroženj v lasti približno 30 do 50 stanovanj. Med letoma 1916 in 1925 so socialne stanovanjske organizacije zgradile 96 000 stanovanj, večinoma odlične kakovosti. V kriznih letih od 1933 do 1939 pa se je gradnja socialnih stanovanj skorajda ustavila. Po drugi svetovni vojni pa je zaradi obsežnega programa subvencij gradnja novih stanovanj cvetela. V praksi so na delo stanovanjskih združenj vplivali vlada, ki je določala najemnine in gradbene zahteve, ter lokalne oblasti, ki so odločale o izbiri arhitekta, razpisih ter o nadzoru med gradnjo in dodeljevanjem stanovanj (Davis, 2001).

V osemdesetih letih prejšnjega stoletja se je pomanjkanje stanovanj zmanjšalo, nizozemska vlada pa se je spopadala tudi z ogromno krizo državnega dolga, zaradi česar je zmanjšala subvencije za socialna stanovanja. Postopoma je vlada socialna stanovanja predala lokalnim oblastem (Davis, 2001). Sektor socialnih stanovanj je začel prejemati posojila na kapitalskem trgu, zavarovane s skupnimi garancijami vlade in sektorja, neposredne subvencije za gradnjo novih stanovanj pa so bile večinoma ukinjene (Nieboer in Gruis, 2014). V tem novem pravno-ekonomskem okviru so lahko stanovanjska združenja samostojno prodajala stanovanja, reinvestirala prihodke in se odločala, kako bodo svoja sredstva razporedila za uresničevanje svojih socialih nalog.

V devetdesetih letih so se stanovanjske organizacije združevale. Dve nacionalni krovni stanovanjski organizaciji na Nizozemskem, Nationale Woningraad in NCIV, sta se maja 1998 združili in ustanovili novo federacijo organizacij za socialna stanovanja z imenom Aedes. Stanovanjska združenja, povezana v Aedes, predstavljajo 40 % nizozemskega socialnega stanovanjskega fonda. Leta 2000 je bilo v 750 nizozemskih stanovanjskih združenjih nastanjenih 37 % prebivalstva, v lasti pa so imela nekaj manj kot 2,5 milijona stanovanj (Walker in van der Zon, 2000).

Financiranje zagotavljanja socialnih stanovanj in jamstvenih shem

Ker je nizozemska vlada postopoma opuščala politiko subvencij, so se stanovanjske zadruge preusmerile v prodajo in druge storitve. Prodaja novih in obstoječih stanovanj je postala vse pomembnejša za financiranje razvoja stanovanj in kot sredstvo za navzkrižno subvencioniranje socialnih dejavnosti. Stanovanjske zadruge se ukvarjajo tudi z zagotavljanjem socialnega varstva, oskrbo, lokalnim gospodarstvom in izobraževanjem (Nieboer in Gruis, 2016).

Nieboer in Gruis (2016) govorita o petih razvojnih fazah nizozemskega stanovanjskega sektorja:

1) Po finančni krizi leta 2008 je bila stanovanjska gradnja močno omejena.

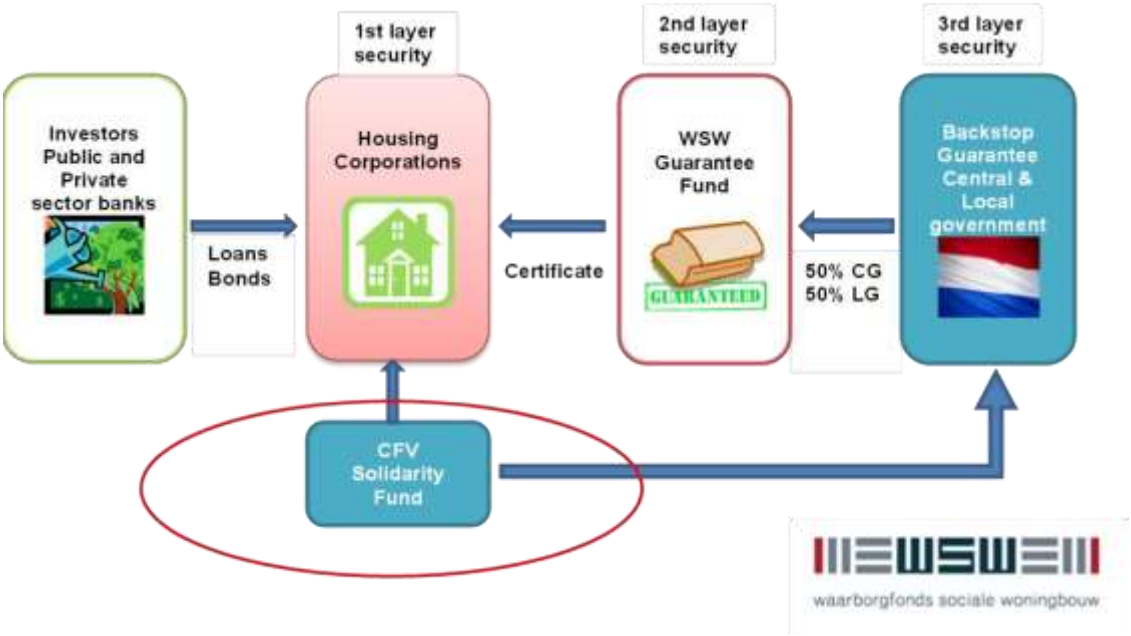
2) Nacionalna vlada je odpravila oprostitev plačila davka od dohodkov pravnih oseb za neprofitne dejavnosti.

3) Privilegiran tržni položaj stanovanjskih združenj ni bil v celoti skladen s konkurenčnim pravom EU, zato so se morala stanovanjska združenja omejiti na zagotavljanje stanovanj za ljudi v stiski.

4) Leta 2014 je bil uveden nov davek na nepremičnine za neprofitna stanovanja.

5) Po več kot desetletju širjenja dejavnosti, ki je trajalo približno do leta 2008, so nizozemska stanovanjska združenja skrčila področje svojega delovanja in se bolj osredotočila na tradicionalne naloge na področju socialnih stanovanj.

Za finančno neodvisnost stanovanjskih združenj na Nizozemskem je bilo treba uvesti učinkovit mehanizem garancij. Nizozemski jamstveni sklad za socialna stanovanja (Waarborgfonds Sociale Woningbouw), ki je bil ustanovljen leta 1983 kot zasebni neprofitni finančni posrednik in organizacija za garancije, ima eno največjih garancijskih shem za socialna stanovanja v Evropi. Deluje v sodelovanju s solidarnostnim skladom v javni lasti, ki ima pravico pobirati prispevke od vseh članskih stanovanjskih združenj za pomoč tistim, ki so v finančnih težavah. Tako je 96 odstotkov posojil za razvoj socialnega stanovanjskega sklada zagotovljenih prek jamstvenih shem (Lawson, 2013).




Vir: Lawson, 2013

*Slika 2: Struktura nizozemskega jamstva za socialna stanovanja*

## Razprava

V jugovzhodni in srednji Evropi trenutno ni programov socialnih stanovanj, ki bi vključevali zgoraj opisane garancijske sheme. Zato je obseg socialnih stanovanj bistveno manjši kot v Združenem kraljestvu in na Nizozemskem. Večina socialnih stanovanj je v lasti javnih stanovanjskih skladov, ki jih ustanovijo nacionalna vlada in lokalne oblasti. Kljub razpoložljivosti sredstev Evropske investicijske banke za razvoj socialne infrastrukture, predvsem v okbliki posojil, javni stanovanjski skladi zaradi omejitev pri zadolževanju občin ne morejo zgraditi takšnega sklada socialnih stanovanj, ki bi bil primerljiv z Anglijo in Nizozemsko. Sektor razvoja in upravljanja socialnih stanovanj je treba sistemsko urediti. Ekosistem zagotavljanja socialnih in cenovno dostopnih stanovanj bi moral vključevati razvoj specializiranih finančnih institucij za financiranje stanovanjskih združenj. Poleg tega bi bilo treba, tako kot na Nizozemskem in v Združenem kraljestvu, vzpostaviti javne jamstvene sheme kot mehanizme za obvladovanje tveganja pri posojilih socialnim podjetjem za naložbe v socialna stanovanja.

Slovenska vlada je tako kot mnoge druge ustanovila specializirane finančne institucije za financiranje projektov za posebne namene in socialnih stanovanj. Slovenska SID banka je nacionalna promocijska razvojna banka, pooblaščena za opravljanje dolgoročnih finančnih storitev, ki dopolnjujejo trg na različnih področjih, določenih z Zakonom o izvozni in razvojni banki, ki so bistvena za trajnostni razvoj Slovenije. Temeljna dejavnost, ki jo izvaja SID banka, je financiranje tržnih vrzeli, vključno z razvojem malih in srednjih podjetij ter podjetništva in regionalnega razvoja (SID banka, e-vir). Vendar pa zasebni socialni stanovanjski sklad še ni razvit zaradi pomanjkanja javnih garancijskih shem. Izkušnje iz Združenega kraljestva in Nizozemske bi nam lahko pomagale pri urejanju sektorja socialnih stanovanj, ki ga

upravljajo socialna združenja. Nacionalni stanovanjski program 2015-2025 (ReNSP15-25) že predvideva vključitev socialnih podjetij in zadrug v razvoj in upravljanje socialnega stanovanjskega fonda (Državni zbor, 2015). Vendar bo brez nacionalnih garancijskih shem težko doseči cilj izgradnje ustreznega stanovanjskega fonda za zadovoljevanje stanovanjskih potreb naraščajočega števila starejših odraslih.

## Zaključek

V prispevku smo predstavili razvoj sektorja skupnostnih socialnih stanovanj na Nizozemskem in v Združenem kraljestvu ter vlogo različnih institucij, kot so občine, nacionalne vlade, specializirane finančne institucije in jamstvene sheme. Preučili smo, katere od teh komponent so že razvite v Sloveniji kot primeru nove države članice EU. Ugotovili smo, da je večina komponent že vzpostavljenih (SID banka kot specializirana finančna institucija in nacionalni stanovanjski program). Vendar pa garancijske sheme še ne obstajajo. Za dobro delovanje skupnostne ponudbe socialnih stanovanj, kjer socialna stanovanja razvijajo in upravljajo socialna podjetja, je potreben celoten ekosistem institucij, razvit na Nizozemskem in v Združenem kraljestvu. Potrebne so nadaljnje raziskave za vzpostavitev podobnih mehanizmov obvladovanja tveganj v javnih garancijskih shemah, kot sta jih razvili Nizozemska in Združeno kraljestvo.

Navedba financerja:

Projekt »Razvoj socialne infrastrukture in storitev za izvajanje dolgotrajne oskrbe v skupnosti« (Evidenčna številka: J6-9396) je sofinancirala Javna agencija za raziskovalno dejavnost Republike Slovenije iz državnega proračuna.

## Literatura

1) Davis, D. T. (2001). Comparing the social housing sectors of the Netherlands and the United States. Neurus Paper, University of Ilinois at Urbana-Champaign.

2) Državni zbor (2015). Nacionalni stanovanjski program 2015-2025 (ReNSP15-25). URL: https://www.gov.si/assets/ministrstva/MOP/Publikacije/d42acebd4d/resolucija_nsp_2015_2025.pdf.

3) Fransen, L., Bufalo, del G., in Reviglio, E. (2018). Boosting Investment in Social Infrastructure in Europe : Report of the High-Level Task Force on Investing in Social Infrastructure in Europe. EUROPEAN ECONOMY DISCUSSION PAPER 074, Brussels.

4) Handy, C. in Alden, J. (2018). Housing Associations: a Legal Handbook. Legal Action Group.

5) Harding, A., Parker, J., Hean, S. in Hemingway, A. (2018). Supply-side review of the UK specialist housing market and why it is failing older people. Housing, care and support. 21(2), str. 41-50.

6) HCA (2016). Shared Ownership and Affordable Homes Programme 2016 to 2021: Prospectus.

7) International Longevity Centre (2016). The State of the Nation's Housing. ILC, London.

8) Lawson, J. (2013). The use of guarantees in affordable housing investment - a selective international review. AHURI Positioning Paper; no. 156. Australian housing and urban research institute, RMIT University.

9) Ministry for Housing, Communities and Local Government (2018). A new deal for social housing. London.

10) Ministry of Health, Welfare and Sport, e-vir. URL: https://www.government.nl/topics/care-and-support-at-home/living-independently-for-longer.

11) Nieboer, N., Gruis, V. (2016). The continued retreat of non-profit housing providers in the Netherlands. Journal for Housing and the Built Environment. zv. 31, str. 277–295. DOI 10.1007/s10901-015-9458-1.

12) Pannell, J., Aldridge, H. in Kenway, P. (2012). Market Assessment of Housing Options for Older People: A report for Shelter and the Joseph Rowntree Foundation. New Policy Institute. URL: www.npi.org.uk/files/New%20Policy%20Institute/Market%20Assessment%20of%20Housing%20Options%20for%20Older%20People.pdf.

13) Rusinovic, K., van Bochove, M., van de Sande, J. (2019). Senior Co-Housing in the Netherlands: Benefits and Drawbacks for Its Residents. International Journal of Environmental Research and Public Health. Vol. 16, str. 3776; doi:10.3390/ijerph16193776.

14) Shelter (2012). Policy: report - A better fit? Creating housing choices for an ageing population. URL: https://england.shelter.org.uk/professional_resources/policy_and_research/policy_library/a_better_fit_creating_housing_choices_for_an_ageing_population.

15) SID Banka (e-vir). URL: https://www.sid.si/en/financing/financing

16) Verbeek-Oudijk, D. in van Campen, C. (2017). Older persons in nursing and care homes - national summary of their life situation in 2015/16. The Netherlands Institute for Social Research. The Hague.

17) Von Egdon, G. (1997). Housing for the elderly in the Netherlands: a care problem. Ageing International, zima-pomlad 1997, str. 165.

18) Walker, R. M., in van der Zon, F. M. J. (2000). Measuring the performance of social housing organisations in England and The Netherlands: A policy review and research agenda. Journal of Housing and the Built Environment. zv. 15, str. 183–194.

19) Wood, C. (2013). Top of the Ladder, Demos. URL: https://demosuk.wpengine.com/files/TopoftheLadder-web.pdf?1378922386.

# Overview of the social infrastructure in ten EU member states

**Eneja Drobež**

Zavod INRISK, Ustavno sodišče Republike Slovenije
enejab@yahoo.com

**Abstract**

This paper will present an overview of the social infrastructure and services for community care for the older adults with declined functional capacities in ten (also former) Member States of the European Union. The survey was conducted in ten representative states, comparing the legal and physical goals and constraints, to find the best solutions for Slovenia. We found that the social infrastructure for community care for the older adults is developed differently across Member States, and that there are different models of governance and financing of the social infrastructure. In majority, the main managers of the social infrastructure are stakeholders at local level, such as municipalities and housing organisations, the latter usually operating in a non-profit form as social enterprises or housing associations. Reliable sources of funding, either national or from international organisations, are very important for the development of adequate social care for the older adults. Since 2015, the European Investment Bank has been working to increase investment in social infrastructure and has set up national mechanisms to draw on European funds. However, our literature review did not find that social infrastructure is largely financed through these mechanisms. We believe that this is because most Member States have not put in place guarantee schemes for the financing of social infrastructure for the care of the elderly to ensure financial discipline on the part of social infrastructure managers. Therefore, the article presents in more detail the arrangements in the United Kingdom and the Netherlands as examples of good practice with well-developed financial products called the housing guarantee scheme, and successful functioning the social infrastructure.

Keywords: Social infrastructure, Financial product, Housing guarantee scheme, Europa, Member States.

# Pregled socialne infrastrukture v desetih državah članicah EU

Članek bo predstavil pregled socialne infrastrukture in storitev za oskrbo starostnikov v skupnosti v desetih (tudi nekdanjih) članicah Evropske unije. Ugotavljamo, da je socialna infrastruktura za oskrbo starostnikov v skupnosti po državah članicah različno razvita, ter da obstajajo različni modeli upravljanja in financiranja socialne infrastrukture. Glavni upravitelji socialne infrastrukture so deležniki na lokalni ravni, kot so občine in stanovanjske organizacije, pri čemer slednje običajno delujejo v neprofitni obliki kot socialna podjetja ali stanovanjska združenja. Za razvoj ustrezne socialne oskrbe za starostnike so zelo pomembni zanesljivi viri financiranja, ki so bodisi nacionalni ali pa s strani mednarodnih organizacij. Evropska investijska banka se že od leta 2015 prizadeva povečati investicije v socialno infrastrukturo, v zvezi s tem je tudi vzpostavila nacionalne mehanizme črpanja evropskih sredstev. Kljub temu pri pregledu literature nismo zasledili, da bi se socialna infrastruktura v večjem delu financirala iz teh mehanizmov. Menimo, da je razlog v tem, da se v večini držav članic niso vzpostavile garancijske sheme za financiranje socialne infrastrukture za oskrbo starostnikov, ki bi zagotavljale finančno disciplino upraviteljev socialne infrastrukture. Zato sta v članku podrobneje predstavljeni ureditvi v Združenem Kraljestvu in na Nizozemskem, kot primera dobrih praks z razvitimi garancijskimi shemami in delujočo socialno infrastrukturo.

Ključne besede: socialna infrastruktura, finančni produkt, stanovanjska garancijska shema, Evropa, države članice.

## Uvod

Socialna infrastruktura obsega področja zdravstva; podpore posameznikom, družinam in skupnostim; izobrazbe; kulture in umetnosti; informatike; športa in rekreacije; nastanitev; razvoja skupnosti; zaposlitve in treninga; pravne in javne varnosti; nujnih služb; ter transporta (Casey, 2005). Povezana je torej z najrazličnejšimi storitvami, objekti in javnimi prostori, razmerji in omrežji med člani lokalne skupnosti (Vaznonienė in Kiaušienė, 2018). Vključuje objekte ali storitve, ob odsotnosti katerih je posamezna skupnost v znatno družbeno in ekonomsko slabšem položaju od tistih skupnosti, ki imajo dostop do teh objektov ali storitev (Chan in drugi, 2018). Je lepilo, ki drži skupnosti skupaj kot medsebojno odvisna mreža objektov, prostora, površin, programov, projektov, storitev in omrežij, ki vzdržujejo in izboljšujejo življenjski standard v skupnosti (Perrine, 2015). Opredelitev socialne infrastrukture obsega stavbe, objekte in naprave, ki obstajajo z namenom, da služijo celotni skupnosti (Fransen in drugi, 2018). Socialna infrastruktura spodbuja produktivnost, dobičkonosnost in blagostanje, postavlja temelje stanovanjske skupnosti ter ustvarja kohezijo v skupnosti. Deluje kot platforma oziroma sredstvo za pospeševanje demokracije, enakosti, inovacij in svobode (Chan in drugi, 2018). Vsebuje lahko vse objekte in dejavnosti, ki prispevajo k temu, da je prostor več kot zgolj prostor za bivanje.

Najpomembnejša socialna infrastruktura za starostnike so prilagojeni bivalni objekti - v katerih se lahko izvajajo storitve dolgotrajne oskrbe individualno ali institucionalno - dostopne sprehajalne površine in storitvene dejavnosti za starejše. Bivalni prostori, ki so prilagojeni ljudem z zmanjšanimi funkcionalnimi zmožnostmi, podaljšajo samostojno in avtonomno življenje ter bivanje starejših v domačem okolju. Varno, ustrezno in primerno urejeno okolje je neposredno povezano s kakovostjo staranja (Leung, Famakin, Kwok, 2017, str. 13). Zmožnost starejših, da opravljajo dnevne aktivnosti in da samostojno upravljajo z lastnim življenjem, se zmanjšuje zaradi upadanja njihovih fizičnih in kognitivnih funkcionalnih zmožnosti. Pri slabše prilagojenem grajenem okolju pa te zmožnosti prej padejo pod kritično mejo, ko postanejo starejši odvisni od pomoči drugih. Zato investicije v starostnikom prijazne objekte in naprave ter prilagoditve v okolju lahko odložijo ali celo preprečijo preselitev v institucionalno varstvo, zvišajo kakovost življenja starostnikov in podaljšajo njihovo življenjsko dobo (Bevan, Croucher, 2011, str. 82).

V članku se bomo osredotočili na pregled socialne infrastrukture in storitev za bivanje in oskrbo starostnikov v desetih članicah Evropske unije. Preverili bomo, koliko je socialna infrastruktura za oskrbo starostnikov razvita po proučevanih državah.

Proučili smo ureditev socialne infrastrukture za bivanje in oskrbo starostnikov v 10 državah članicah EU: Nizozemski, Franciji, Španiji, Nemčiji, Italiji, Avstriji, Finski, Danski, Hrvaški in Češki. Države smo izbirali tako, da smo dosegli čim večjo geografsko pokritje posameznih delov Evropske unije ter da smo vključili čim več različnih ureditev. V okviru socialne infrastrukture za bivanje in oskrbo starostnikov smo upoštevali vse prostore za prebivanje starostnikov, kjer se izvajajo socialnovarstvene storitve, in vključujejo neko obliko javnega financiranja.

### Število starejših, ki potrebujejo dolgotrajno oskrbo, ter načini uresničevanja dolgotrajne oskrbe

Iz primerjalne tabele je razvidno, da ima Hrvaška največji delež prebivalstva, ki potrebuje tujo pomoč, in sicer skoraj 10 %. Najmanjši delež tuje pomoči potrebnih oseb ima Španija in sicer 4,3 %. Razlika sicer lahko nastane tudi zaradi načina beleženja oseb, upravičenih do pomoči, in drugih dejavnikov (kot na primer posledic vojne in s tem povezanim večjim številom vojnih invalidov na Hrvaškem). Po drugi strani pa je na Hrvaškem relativno nizek odstotek oseb, ki prebivajo v institucionalnem varstvu (0,8 %), pa tudi najnižji odstotek oseb, ki prejemajo državno subvencionirano oskrbo na domu (zgolj 0,4 %), medtem ko denarna nadomestila prejema zgolj 2,7 % oseb. To pomeni, da je na Hrvaškem dolgotrajna oskrba vsaj v določeni obliki zagotovljeno zgolj 3,9 % osebam oziroma cca. 40 % vseh, ki potrebujejo tujo pomoč. Po drugi strani pa na Nizozemskem, kjer je 6,5 % celotnega prebivalstva odvisnega od tuje pomoči, vsak, ki to potrebuje dobi vsaj eno obliko dolgotrajne oskrbe ( 23 % vsem pomoči potrebnim je zagotovljeno institucionalno varstvo, 81 % dobiva oskrbo na domu, 7 % pa denarne prejemke). Enako velja tudi za Italijo (kjer 17 % oseb, potrebnih tuje pomoči, koristi institucionalno varstvo, 21 % oskrbo na domu, 59 % pa dobiva denarne prejemke) in Avstrijo (9 % pomoči potrebnih koristi institucionalno varstvo, 11 % oskrbo na domu, 78 % pa dobiva denarne prejemke). Velik delež pomoči potrebnih, in sicer 83 %, prejema določeno

vrsto dolgotrajne oskrbe na Češkem (17 % pomoči potrebnih koristi institucionalno varstvo, 15 % oskrbo na domu, 51 % pa dobiva denarne prejemke). Na Finskem pa osebe, ki so potrebne tuje oskrbe pomoči, v več kot 50 % primerov dobivajo več vrst dolgotrajne oskrbe (7 % je v institucionalnem varstvu, 50 % dobiva oskrbo na domu, 71 % pa denarne prejemke).

| **Država** | **Osebe, ki potrebujejo tujo pomoč (v 1000)** | **%** | **Institucionalno varstvo (v 1000)** | **%** | **Oskrba na domu (v 1000)** | **%** | **Denarna nadomestila (v 1000)** | **%** |
|---|---|---|---|---|---|---|---|---|
| Avstrija | 781 | 8,7954 % | 70 | 0,7851 % | 94 | 1,0588 % | 466 | 5,2509 % |
| Češka | 707 | 6,6224 % | 123 | 1,1570 % | 105 | 0,9869 % | 366 | 3,4315 % |
| Danska | 379 | 6,5166 % | 58 | 1,0044 % | 195 | 3,3588 % | 0 | 0,0000 % |
| Finska | 384 | 6,9600 % | 27 | 0,4919 % | 195 | 3,5314 % | 276 | 5,0034 % |
| Francija | 6.185 | 9,2166 % | 1.150 | 1,7138 % | 1.286 | 1,9160 % | 446 | 0,6647 % |
| Hrvaška | 395 | 9,7193 % | 32 | 0,7976 % | 17 | 0,4209 % | 108 | 2,6618 % |
| Italija | 3.395 | 5,6279 % | 645 | 1,0686 % | 721 | 1,1958 % | 2.006 | 3,3253 % |
| Nemčija | 5.795 | 6,9749 % | 858 | 1,0331 % | 754 | 0,9075 % | 2.388 | 2,8739 % |
| Nizozemska | 1.130 | 6,5128 % | 263 | 1,5153 % | 921 | 5,3130 % | 90 | 0,5192 % |
| Španija | 2.007 | 4,2582 % | 153 | 0,3252 % | 454 | 0,9643 % | 606 | 1,2864 % |

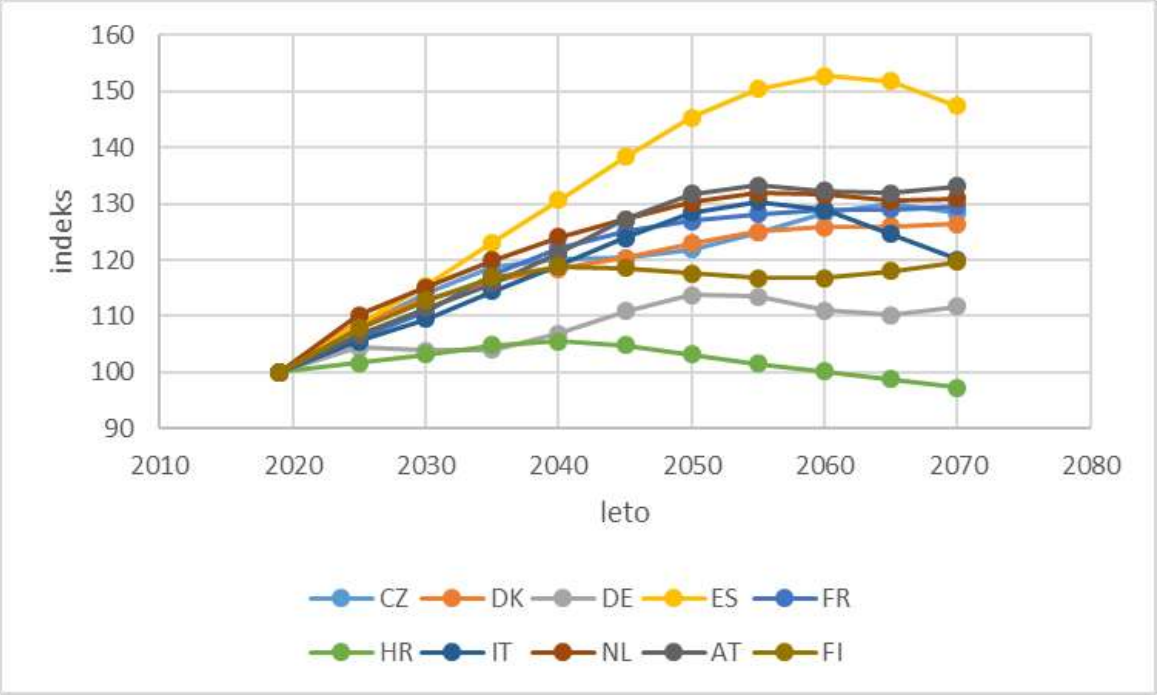
*Tabela 1: Podatki o številu starejših, ki potrebujejo dolgotrajno oskrbo, ter načinih uresničevanja dolgotrajne oskrbe za 10 članic EU za leto 2019.*
*Vir: Evropska komisija, 2021a.*

## Predvidena rast števila odvisnih od tuje pomoči

Dolgoročne demografske projekcije kažejo na izrazit trend staranja evropske populacije v prihodnjih desetletjih. Skupno število prebivalcev EU naj bi se dolgoročno ne le zmanjševalo, ampak se bo v prihodnjih desetletjih tudi precej spremenila njihova starostna struktura. Po podatkih Eurostata se bo celotno prebivalstvo med letoma 2019 (447 milijonov) in 2070 zmanjšalo za 5 % (424 milijonov). Število prebivalstva v aktivni dobi (20-64 let) se bo še bolj izrazito zmanjšalo, in sicer z 265 milijonov v 2019 na 217 milijonov leta 2070, kar je posledica rodnosti, pričakovane življenjske dobe in dinamike migracijskih tokov. Po

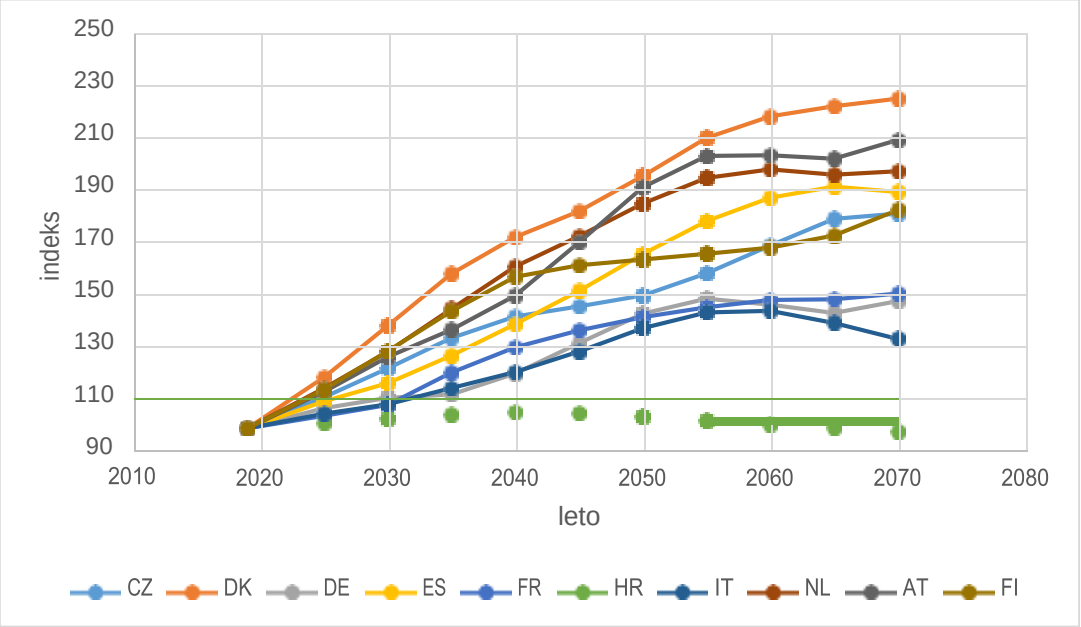
Eurostatovih demografskih napovedih naj bi se pričakovana življenjska doba v EU ob rojstvu povečala za 7,4 leta za moške in za 6,1 leta za ženske, najbolj pa naj bi se povečala v državah članicah, ki imajo trenutno najnižjo pričakovano življenjsko dobo.

Z grafom 1 je prikazan indeks rasti oseb, odvisnih od tuje pomoči. Iz njega je razvidno, da bo v državah članicah EU različna dinamika rasti števila prebivalstva, odvisnega od tuje pomoči. Rast števila prebivalstva, odvisnega od tuje pomoči, bo najvišja v Španiji (in sicer bo rast v letu 2060 glede na bazno leto 2019 53 %), kateri sledita Avstrija (32 odstotna rast v letu 2060) in Nizozemska (32 % rast v letu 2060), ter Italija (29 % rast v letu 2060). Najnižji indeks rasti prebivalstva, odvisnega od tuje pomoči, bo imela Hrvaška, in sicer bo ta indeks najvišji v letu 2040, ko bo dosegel 6 %, nato bo do leta 2060 padel na enako raven kot v baznem letu 2019, do leta 2070 pa bo se celo zmanjšal za 3 %. Zaradi različne dinamike rasti števila prebivalstva, odvisnega od tuje pomoči, bodo imele različne države različne potrebe po razvoju socialne infrastrukture za dolgotrajno oskrbo.

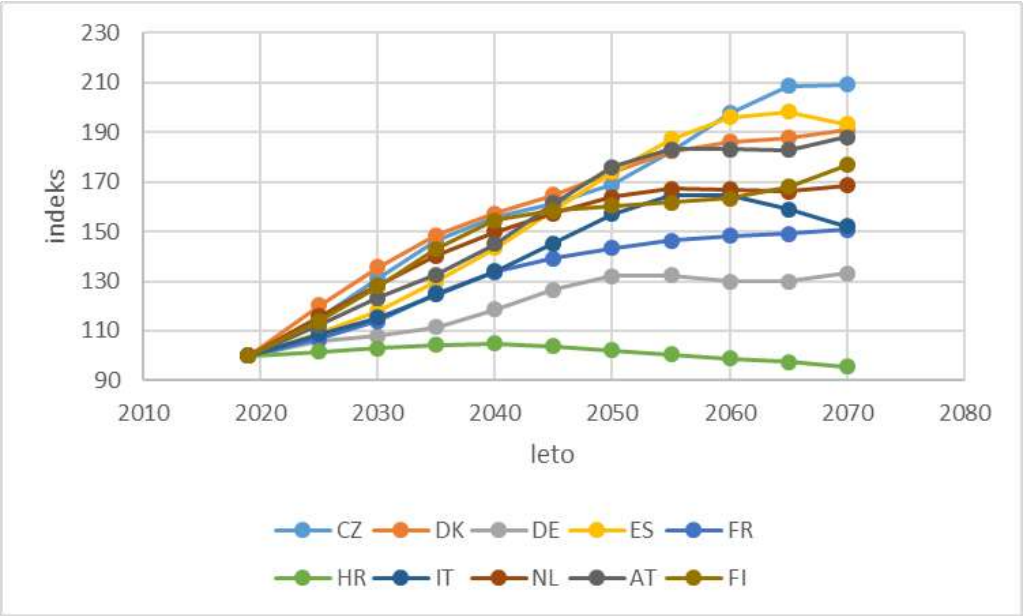



*Graf 1: Indeks rasti odvisnih od tuje pomoči v izbranih državah članicah, prirejeno po: Evropska komisija, 2021a.*

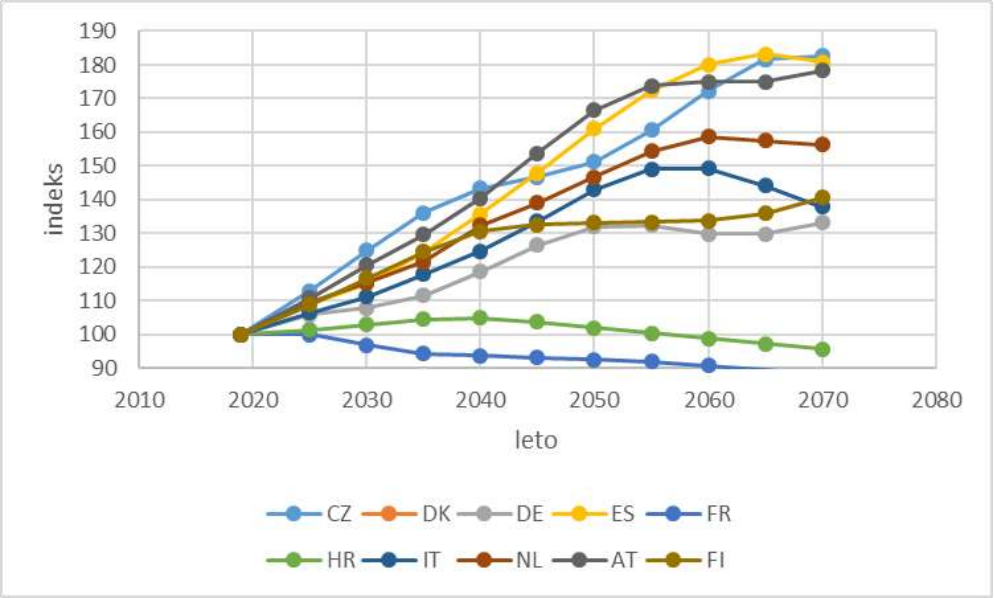
V grafih 2, 3 in 4 so prikazane projekcije rasti prejemnikov institucionalnega varstva, pomoči na domu in denarnih prejemkov, ob upoštevanju obstoječe zakonodaje in pravic, ki jih ta zagotavlja upravičencem do tuje pomoči.




*Graf 2: Indeks rasti prejemnikov institucionalnega varstva v izbranih državah članicah, prirejeno po: Evropska komisija, 2021a.*




*Graf 3: Indeks rasti prejemnikov oskrbe na domu v izbranih državah članicah, prirejeno po: Evropska komisija, 2021a.*




*Graf 4: Indeks rasti prejemnikov denarne pomoči v izbranih državah članicah, prirejeno po: Evropska komisija, 2021a.*

## Institucionalno varstvo

Po pregledu literature (WLGA, 2017; Evropska komisija, 2021a, 2021b) ugotavljamo, da lahko institucionalno varstvo starejših strnemo v naslednje glavne podtipe:

| | **Domovi za oskrbo (residential care homes)** |
|---|---|
| **Standardni domovi za oskrbo** | Stanovalci potrebujejo pomoč in podporo pri naslednjih vprašanjih:<br>• vstajanje in/ali vstajanje iz postelje;<br>• umivanje in/ali oblačenje;<br>• uporaba stranišča (na primer uporaba blazinic za vzdrževanje kontinence ali običajna oskrba katetra);<br>• rezanje hrane / posebna priprava hrane / pomoč;<br>• dajanje zdravil ali uporaba maske za kisik ali razpršilnika;<br>• rahla zmedenost [in/ali] izguba spomina. |

| | Domovi za oskrbo (residential care homes) |
|---|---|
| **Stanovanjski dom za oskrbo za zelo odvisne starostnike** | Poleg zgoraj opisane standardne pomoči in podpore v domu za starejše lahko stanovalec potrebuje:<br>• Pomoč dveh oseb pri hoji / premikanju / uporabi stranišča;<br>• uporabo dvigala za premeščanje;<br>• osebje, ki mu pomaga pri hranjenju;<br>• stalen nadzor s strani osebja zaradi tavanja / poseganja v druge osebe / ali njihovo osebno lastnino |
| **Dom za starejše duševno prizadete (Elderly Mentally Infirm - EMI)** | Oseba, ki potrebuje takšno prilagoditev, ima običajno organsko duševno bolezen, npr. Alzheimerjevo bolezen ali demenco, ali funkcionalno bolezen, kot je depresija. Te osebe so lahko:<br>• zelo pozabljive v zvezi z nedavnimi dogodki;<br>• zmedene/dezorientirane [ali se zlahka izgubijo]; oziroma<br>• zanemarjajo higieno/prehranjevanje; ter<br>• ne morejo ustrezno komunicirati / voditi smiselnih pogovorov |

| | Negovalni domovi (nursing care homes) |
|---|---|
| **Negovalni dom** | Oseba, ki potrebuje zdravstveno nego, lahko potrebuje:<br>• pomoč, ker ne more stati ali nositi bremena<br>• obsežno pomoč pri vzdrževanju kontinence<br>• stalno spremljanje/prilagajanje zdravil, ki zahteva presojo usposobljene medicinske sestre<br>• pomoč pri zapletenih režimih za komunikacijo/zdravila<br>• usposobljeno posredovanje za obvladovanje potreb, vendar pri tem njene fizične potrebe prevladajo nad zmedenostjo / vedenjskimi težavami in zato ne potrebuje psihiatrične zdravstvene nege |

| | |
|---|---|
| **Negovalni dom za starejše duševno prizadete (EMI)** | Oseba, ki potrebuje takšno oskrbo, ima lahko naslednje znake:<br>• nemirno vedenje / nenehno tavanje<br>• slabo prepoznava družino / prijatelje / vsakdanje predmete"<br>• jezno vedenje - lahko lahko se zelo hitro razburi [in] se od tega ne da zlahka odvrniti<br>• lahko postane agresivna do osebja in/ali drugih stanovalcev, kar zahteva spretno posredovanje negovalcev<br>• upira se osebni negi<br>• halucinacije / blodnje / sliši glasove, na katere se odziva. |
| **Negovalni dom, ki zagotavlja stalno zdravstveno varstvo NHS (NHS CHC)** | Domovi za starejše, ki zagotavljajo storitve NHS CHC, morajo biti sposobni obravnavati posebno visoke potrebe, kot so:<br>• izzivalno vedenje, ki je tako resno in/ali pogosto in/ali nepredvidljivo, da predstavlja takojšnje in resno tveganje zase in za druge. Tveganja so tako resna, da za varno oskrbo zahtevajo posredovanje in dostop do takojšnjega strokovnega odziva v vsakem trenutku<br>oskrbovanec je popolnoma negiben, njegovo klinično stanje pa je takšno, da ob premiku ali premestitvi obstaja veliko tveganje za resno telesno poškodbo in da je položaj kritičen;<br>• nezmožnost sprejemanja hrane in pijače z usti - vse prehranske potrebe se sprejemajo z umetnimi sredstvi, kar zahteva stalno strokovno posredovanje ali spremljanje v obdobju 24 ur<br>• oskrbovanec ne more samostojno dihati in potrebuje invazivno mehansko posredovanje<br>• režim zdravljenja z zdravili, ki zahteva dnevno spremljanje s strani diplomirane medicinske sestre, da se zagotovi učinkovito obvladovanje simptomov in bolečin, povezanih s hitro spreminjajočim se ali poslabšujočim se stanjem<br>• nepopustljiva in nepremagljiva bolečina kljub vsem prizadevanjem za učinkovito obvladovanje bolečine. |

Število postelj v domovih za starejše občane se po preučevanih ureditvah zelo razlikuje, prav tako se razlikuje lastništvo navedene vrste institucionalnega varstva. V **Franciji** je leta 2019 4,9 % oseb, starejših od 65 let, bilo deležnih oskrbe v institucijah, 6,2 % pa je bilo deležnih oskrbe na domu. V Franciji je 7438 stanovanjskih domov za oskrbo, ki ponujajo 98 mest na 1000 starejših od 75 let. Leta 2015 je bilo v teh ustanovah oskrbovanih 10 % starejših od 75 let in tretjina starejših od 90 let. Povprečni stroški nastanitve v stanovanjskem domu za oskrbo so se gibali od 51 do 71 EUR na dan. 22 % mest zagotavljajo zasebne profitne organizacije, 28 % zasebne neprofitne organizacije, 50 % mest pa javne organizacije, ki so lahko tudi bolnišnice (negovalni domovi). Število postelj, namenjeno osebam potrebnim tuje pomoči, znaša 981,5 na 100.000 prebivalcev. Kljub povečanju razmerja med številom osebja in številom pacientov med letoma 2011 in 2015 - z 59,7 na 62,8 osebja v ekvivalentu polnega delovnega časa na vsakih 100 pacientov - število osebja še vedno ne zadostuje za zagotavljanje kakovostne oskrbe (Bazin in Muller, 2018).

V **Avstriji** je do konca septembra 2017 približno 87 % (394.000) vseh prejemnikov denarnega nadomestila za dolgotrajno oskrbo (nem. *Bundespflegegeld*) živelo v lastnem domu, približno 13 % (75.500) pa v institucionalnem varstvu (tj. domovih za ostarele in domovih za oskrbo; Nagl-Cupal in drugi, 2018). Leta 2019 je bilo z mobilnimi storitvami na domu (npr. nega na domu, pomoč na domu) oskrbovanih skupaj 153.152 starejših oseb; 1.933 oseb je koristilo večurne storitve dnevnega spremstva in pomoči v domačem okolju. 75.710 oseb je bilo nastanjenih v domovih za starejše in v negovalnih domovih 9.040. Delno stacionarno dnevno oskrbo (dnevni centri) je uporabljalo 8.883 oseb, 3.465 oseb je živelo v alternativnih oblikah bivanja, kot so oskrbovana/varovana stanovanja (Statistik Austria, e-vir). V Avstriji obstaja cca. 870 domov za starejše, od tega jih je več kot 400 v javni lasti. Zagotovljeno je 865,1 postelje v institucionalnem varstvu na 100.000 prebivalcev (Evropska komisija, 2021b, str. 318).

Na **Češkem** je bilo leta 2015 15 % oseb, ki so potrebovale dolgotrajno oskrbo, v institucionalnem varstvu v zdravstvenih ali socialnih ustanovah. Večina dolgotrajne oskrbe se zagotavlja v obliki neformalne oskrbe, ki jo zagotavljajo osebe, ki so blizu osebam, ki potrebujejo oskrbo. Leta 2019 je bil delež prebivalstva, starega 65 let in več, ki je prejemal oskrbo v institucionalnem varstvu, 4,2 %, 4,5 % pa je prejemalo oskrbo na domu (MLSA, 2015). Konec leta 2019 je bilo na Češkem 524 domov za starejše z zmogljivostjo 36.688 postelj in 349 domov s posebnim režimom z 20.904 posteljami. Prevladujejo domovi v lasti občin, ki predstavljajo 80 % vseh postelj v domovih za starejše in 58 % vseh postelj v domovih s posebnim režimom. V domovih za dolgotrajno oskrbo je bilo leta 2017 687,5 postelj na 100.000 prebivalcev, kar pomeni zgolj 3,8-odstotno povečanje od leta 2008 (MLSA, 2015). Po statističnih podatkih pristojnega ministrstva (MSLA, 2015) so kapacitete v institucionalnem varstvu polne. Konec leta 2019 je tako bilo več kot 60.600 prošenj za mesta v domovih za starejše in 26.100 prošenj za mesta v domovih s posebnim režimom, katerim ni bilo ugodeno. Ker prosilci običajno vložijo več kot eno vlogo, je težko oceniti dejansko število čakajočih na prosto mesto v institucionalnem varstvu, verjetno pa gre za cca. 20.000 prosilcev. Pričakuje se, da bo glede na demografski razvoj povpraševanje po mestih v domovih za starejše v prihodnosti hitro naraščalo.

Na **Danskem** je bilo leta 2018 25,1 % oseb, starejših od 65 let, vključenih v štiri glavne elemente sistema dolgotrajne oskrbe: 8,2 % jih je prejelo preventivni obisk na domu; 1,0 % jih je opravilo rehabilitacijo; 10,3 % jih je prejelo oskrbo na domu (12,9 % žensk in 7,3 % moških); 5,6 % jih je bivalo v domovih za starejše (Danmarks Statistik, e-vir). Danska ima približno 933 zavodov za oskrbo v domovih z več kot 40.000 stanovalci. Za Dansko pa je značilen trend deinstitutionalizacije, ki je razviden tudi iz okoliščine, da upada število postelj za dolgotrajno oskrbo na 100.000 prebivalcev – številka je iz 889,2 v letu 2014 padla na trenutno 750,2. Pri dodelitvi mesta v domu za starejše se upoštevajo fizične, duševne in socialne potrebe posameznika. Če je funkcionalna zmogljivost starejše osebe v obstoječem domu občutno zmanjšana in doma ni mogoče prilagoditi, se ji lahko odobri namestitev v domu za starejše. Po uvrstitvi na čakalni seznam je treba starejšim ponuditi mesto v dveh mesecih. Katera nastanitev je dodeljena starejši osebi, je odvisno od njenih želja in potreb po oskrbi, pa tudi od lokalnih razmer na področju politike in prostih mest v domovih za starejše in splošnih domovih za starejše. Starejši ljudje ki jim je bila dodeljena nastanitev, lahko prosto izbirajo, ali bodo zaprosili za dom v drugi občini ali v drugi ustanovi. Starejšim ljudem, ki želijo še naprej živeti s svojim zakoncem ali partnerjem, je treba ponuditi dom, primeren za dve osebi (Evropska komisija, 2021b, str. 55).

Do konca leta 2019 je v **Nemčiji** skoraj 3,31 milijona (80 %) od približno 4,1 milijona ljudi, ki potrebujejo dolgotrajne oskrbe oskrbovanih na domu, 0,82 milijona (20 %) pa v domovih za ostarele (Statistisches Bundesamt, e-vir). Delež populacije stare 65+, ki prejemajo oskrbo v institucijah, znaša 4,3 %. V Nemčiji je po najnovejših podatkih statističnega urada 15.380 domov za ostarele, od tega 11.317 domov s celotno dolgotrajno oskrbo, v katerih je v povprečju nastanjenih 62,3 oskrbovanca. Od teh domov je 6570 v zasebni lasti. Število postelj na 100.000 prebivalcev znaša 1.152,2. Krepitev neformalne oskrbe na domu (s strani bližnjih sorodnikov ali prostovoljcev) je eden izmed glavnih aktualnih ciljev politik na področju dolgotrajne oskrbe, zlasti ker si večina ljudi, ki potrebujejo oskrbo, želi, da bi ostali na svojem domu.

Na **Finskem** je v letu 2019 1,9 % starih 65+ prejemalo storitve dolgotrajne oskrbe v institucijah, 13,3 % pa je prejemalo oskrbo na domu. Skupno število postelj za dolgotrajno oskrbo na 100.000 prebivalcev je 1.190,0. Javne storitve dolgotrajne oskrbe imajo različne oblike in se zagotavljajo na različne načine - v obliki storitev v naravi ali v denarju ali v kombinaciji obeh. Storitve v naravi vključujejo storitve dolgotrajne oskrbe v zdravstvenih domovih (občinskih), domovih za starejše (občinskih ali zasebnih), varovanih domovih (občinski, zasebni profitni in neprofitni ponudniki), intenzivnih varovanih domovih (občinskih ali zasebnih) in dnevnih centrih za oskrbo/storitvenih centrih (večinoma javnih). Javno izražen cilj je omogočiti ljudem, da še naprej živijo na domu kljub potrebi po dolgotrajni oskrbi. V številnih občinah so storitve na domu in zdravstvena nega na domu združene kot storitve na domu z oskrbo. Zaradi naraščanja števila starejših ljudi in ukinjanja institucionalnega varstva (domov za starejše in postelj za dolgotrajno oskrbo v zdravstvenih ustanovah) je nastal trg za zasebne ponudnike storitev dolgotrajne oskrbe. Občine, ki same ne morejo zadovoljiti naraščajočega povpraševanja, nakupijo storitve pri drugih občinah oziroma pri občinskih konzorcijih ter pri zasebnih ponudnikih. Občine same zagotavljajo 38 % storitev dolgotrajne oskrbe, 25 % jih

kupujejo od drugih občin/občinskih konzorcijev, preostalih 37 % pa zagotavljajo zasebni ponudniki. Profitna podjetja predstavljajo 70 % vseh subjektov na področju stanovanjskih storitev za dolgotrajno oskrbo (Lith, 2018).

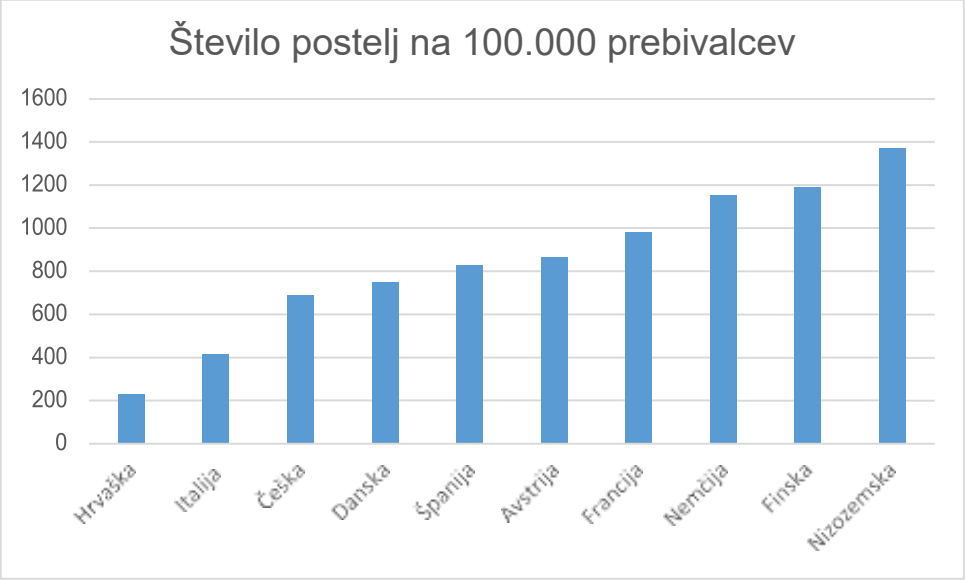
Na **Hrvaškem** se dolgotrajna oskrba financira iz državnega proračuna in iz zasebnih virov. Država subvencionira vse upravičence v javnih domovih iz državnega proračuna ter celotne stroške za ranljive skupine, o čemer odločajo centri za socialno varstvo, v zasebnih in javnih domovih. Upravičenci v javnih zavodih plačujejo subvencionirane cene, medtem ko upravičenci v zasebnih v zasebnih ustanovah plačujejo tržne cene. Problematično pa je, da ureditev dolgotrajne oskrbe v javnih domovih in zagotovitev mesta upravičencev ni transparentna. Javni domovi imajo "monopolni" položaj, kar pomeni, da zasebni ponudniki z njimi ne morejo tekmovati. Pridobivanje mest v javnih domovih za oskrbo ni predmet preglednega postopka. Leta 2018 je bilo na primer v občinskih javnih domovih 1418 uporabnikov, katerih glavna "potreba" je bila "osamljenost", 385 uporabnikov, katerih glavna "potreba" so bili "moteni odnosi v družini", in 508, pri katerih je šlo za neustrezne stanovanjske razmere v družini Zgolj 73 % prebivalcev javnih domov za ostarele je tam zaradi bolezni, slabosti ali invalidnosti (Evropska komisija, 2021b). Konec leta 2019 so obstajali: 1) trije domovi za starejše v državni lasti (za 171 uporabnikov), ki jih je koristilo 168 oseb, 156 prošenj pa še ni bilo realiziranih; in 45 domov v občinski lasti (za 10 945 uporabnikov), ter 106 domov v lasti zasebnikov, neprofitnih organizacij in verskih skupnosti (za 6458 uporabnikov (Republika Hrvatska, 2019). 2,4 % prebivalstva, starejšega od 65 let (približno 23.000 od 838.000) je oskrbovanih v organiziranih oblikah institucionalnega varstva, kot so javni in zasebni domovi za starejše, ali v skupnostni oskrbi, kot so družinski domovi in rejniške družine. Število postelj na 100,000 prebivalcev znaša 227,9.

V **Italiji** razmeroma velik del starejšega prebivalstva s potrebami po dolgotrajni oskrbi, in sicer približno 11 % oseb, starih 65 let in več, prejema denarne transferje, 3,2 % starejših ima dostop do nastanitvenih ustanov, 4,7 % pa prejema oskrbo na domu. Število postelj za dolgotrajno oskrbo se postopoma povečuje - leta 2014 je bilo 393,3 postelje na 100.000 prebivalcev, leta 2017 pa 415,8.

Oskrba starejših na **Nizozemskem** je večinoma sestavljena iz tradicionalne zdravstvene nege, oskrbe in oskrbe na na domu (Verpleging, Verzorging en Thuiszorg). Kljub velikemu pomenu institucionalne oblike (16 % vseh oseb, starih 80 let in več, prejema oskrbo v instituciji), se vse bolj uveljavlja oskrba na domu, ki jo zagotavljajo občinski organi in neformalni oskrbovalci. 30 % vseh oseb, starih 80 let in več, prejema oskrbo na domu. 5,6 % starejše generacije prejema oskrbo v instituciji, 19,1 % prejema oskrbo na domu, 1,2 % pa prejema denarne dajatve. Število postelj za dolgotrajno oskrbo na 100.000 prebivalcev znaša 1,370.7.

V **Španiji** se storitve dolgotrajne oskrbe izvajajo kot tehnična pomoč, oskrba na domu, dnevni in nočni centri, in oskrba v domovih. Upravičenci ne morejo prosto izbirati med izvajalci dolgotrajne oskrbe. Tehnična pomoč vključuje pomoč na domu na daljavo (svetovanje prek interneta, sistem opozarjanja, sistem spremljanja itd,) ter je na voljo osebam z zmerno stopnjo odvisnosti, ki živijo doma. Storitve pomoči na domu so podporne storitve za oskrbovalce oseb z visoko stopnjo odvisnosti. Vključujejo tudi pomoč pri osebni negi. Dnevni centri pomagajo izboljšati in ohraniti

najvišjo možno raven osebne samostojnosti in predstavljajo podporo družinam ali oskrbovalcem. Nočni centri so veliko manj razširjeni kot dnevni centri; obravnavani so predvsem kot podporne storitve za oskrbovalce. Bivanjska oskrba je lahko stalna (samo za II. ali III. stopnjo odvisnosti), ali začasna (kratkotrajno bivanje zaradi okrevanja, počitnic in bolezni ali za zagotavljanje počitka za neformalne oskrbovalce). V Španiji 1,2 % starih 65+ prejema oskrbo v instituciji, 3,9 % prejema oskrbo na domu, 4,4 % pa prejema denarna nadomestila. Število postelj za dolgotrajno oskrbo na 100.000 prebivalcev znaša 830,3 (Evropska komisija, 2021b).




Iz obravnavanih podatkov izhaja, da je največ postelj za dolgotrajno oskrbo zagotovljenih na Nizozemskem in na Finskem, najmanj pa na Hrvaškem in v Italiji.

**Alternative oblike bivanja za starostnike**

V številnih državah članicah je razviden trend deinstitucionalizacije oblik za bivanje in oskrbo starejših tako, da slednji namesto v institucionalnih ustanovah (kot so domovi za starejše občane) bivajo v domovih in okoljih za oskrbo v skupnosti. Navedeni trend sovpada s siceršnjim trendom razvoja kolektivnih oblik reševanja stanovanjskega vprašanja, ki vključujejo oblike samoupravljanja in participacije, ter ki jih lahko opredelimo kot sostanovanjske oziroma sodelujoče stanovanjske skupnosti (ang. Collaborative Housing; Czischke in drugi, 2020). Za starostnike so s tega vidika pomembne predvsem vasi za upokojence, ki predstavljajo nove in alternativne življenjske rešitve, preko katerih se starejšim ponudi kombinirane storitve bivanja in oskrbe, družbene dejavnosti ter možnosti za socialne stike (Croucher, 2006; Scharlach in drugi, 2014). Razvoj takšnih vmesnih stanovanjskih rešitev z oskrbo za starejše ljudi, vključno z upokojenskimi naselji in skupnostmi, je mogoče razumeti kot enega od korakov v deinstitucionalizaciji storitev oskrbe starejših in politik staranja na domu, ki so razširjene v številnih državah. Ključni potencial upokojenskih vasi je, da njihovo delovanje temelji na življenju v skupnosti in ne zgolj na institucionalni oskrbi ali izolirani oskrbi na domu.

Vasi za starostnike, upokojenska naselja in skupnosti ter drugi alternativni stanovanjski modeli, ki združujejo nastanitev z oskrbo in z družabnimi dejavnostmi, lahko za starejše pomenijo prijaznejše in varnejše okolje kot običajni domovi, hkrati pa je stanovalcem omogočena večja neodvisnost kot v institucionalno organiziranih domovih za starejše (Liddle in drugi, 2014). Pri tem je bistveno, da upokojenska naselja starejšim zagotavljajo namensko zasnovana stanovanja brez ovir, ter da vključujejo tudi objekte in dejavnosti, ki niso povezane z oskrbo, temveč ustvarjajo priložnosti za neformalne in formalne družbene dejavnosti. Storitev oskrbe in podpore v upokojenskih naseljih se lahko hitro in prilagodljivo odzivajo na različne potrebe po oskrbi v daljšem časovnem obdobju. Vasi za upokojence so tako stanovanja z oskrbo za poznejše življenje, v katerih se daje prednost družbenim in doživljajskim vidikom staranja (Croucher in drugi, 2006). So oblika "stanovanj z integriranimi storitvami", ki vključujejo široko paleto kombiniranih stanovanjskih rešitev in rešitev oskrbe za starejše (Howe in drugi, 2013). So vmesna oblika bivanja za starejše, ki vključujejo značilnosti doma in institucij, vendar niso izključno niti dom niti institucija (Lundman, 2020). Meja med posameznimi oblikami stanovanjskih rešitev je fluidna: Lang, Carriou & Czischke (2020) tako povsem upravičeno navajajo, da je težko potegniti ločnico med sodelujočimi stanovanjskimi oblikami za starostnike in (izključno) oskrbovanimi stanovanji za starostnike.

Na **Nizozemskem** se je že v osemdesetih letih prejšnjega stoletja uveljavil model »majhnih domov« oziroma »majhnih hiš« kot alternativni model bivanja za starejše. V letu 2010 je bilo približno 25 odstotkov vse oskrbe za osebe z demenco zagotovljene v majhnih bivalnih objektih (Verbeek in drugi, 2010). Pomemben koncept, ki se je na Nizozemskem razvil kot rešitev za soočanje z izzivi segregacije in preselitve starostnikov, je koncept Stanovanj za življenje, ki ga je leta 1995 zasnoval direktor združenja Humanitas Hans Becker. Poudarek koncepta je na sreči stanovalcev, temu pa sledita tako fizična zasnova stavb kot tudi filozofija. V Stanovanja za življenje se lahko vselijo posamezniki ali pari, stari nad 55 let, ki so običajno še vedno samostojni. Če posamezniki sčasoma potrebujejo oskrbo, jim je ta zagotovljena in se jim ni treba preseliti. Stanovanja so posebej zasnovana tako, da omogočajo stanovalcem, da ostanejo v istem stanovanju do smrti – s tem stanovanja omogočajo resnično staranje na enem mestu. Stanovanja so tako "odporna na starost" ("levesloopbestendige", Regnier, 2013). Od odprtja prve stavbe Stanovanj za življenje leta 1992 v Rotterdamu, je bilo na Nizozemskem zgrajenih že 30 tovrstnih kompleksov s 3000 stanovanji (Centre for Public Impact, 2018). Od devetdesetih let prejšnjega stoletja dalje je tudi kmetijski sektor na Nizozemskem vse bolj vključen v ponudbo zdravstvenih in socialnih storitev za različne skupine strank. K temu je prispevalo več družbenih sprememb. Zaradi vse večjega pritiska na kmetijski sektor in spreminjajočih se zahtev družbe se je spremenila tudi usmeritev kmetov na Nizozemskem. Obstaja vse večje zanimanje za inovativne diverzifikacijske dejavnosti kmetij, kot so rekreacija, predelava hrane, prodaja na domu in kmetovanje z nudenjem oskrbe. Število kmetij z oskrbo na Nizozemskem se hitro povečuje, in sicer s 75 leta 1998 na več kot 1100 danes (de Bruin in drugi, 2020).

Tudi v **Franciji** so se oblikovale alternative za bivanje starostnikov, ki so nekje med oskrbo na domu in oskrbo v domovih. Stanovanjske ustanove so namenjene starim ljudem, ki so večinoma samostojni, in vključujejo majhna stanovanja, ki so

prilagojena tako, da je tveganje padcev čim manjše. Spodbujanje razvoja stanovanjskih ustanov, ki se imenujejo tudi avtonomne rezidence (résidences autonomie) je prednostna naloga stanovanjske politike v skladu z Zakonom o prilagoditvi družbe starostnikom z leta 2015. V letu 2018 so avtonomne rezidence zagotavljale 110.000 mest za bivanje starostnikov (CNSA, 2019). Poleg tega je bilo v letu 2018 zagotovljenih 11.900 mest v dnevnem varstvu starejših in 15.500 mest za začasno namestitev (CNSA, 2019).

**Danska** spodbuja razvoj alternativnih domov za starejše in pozna tako poleg klasičnih domov za starejše (plejehjemsboliger), ki so ustanove za starejše s stalnim osebjem in storitvenimi prostori, tudi varovana stanovanja (beskyttede boliger), ki so povezana z ustanovami za starejše. Varovana stanovanja so bodisi stalna s stalnim osebjem in storitvenimi prostori, bodisi delujejo s sistemom klica v sili itd. Na Danskem poznajo tudi splošne domove za starejše (almene ældreboliger), ki so zasnovani tako, da so primerni za starejše ljudi in invalide, vendar nimajo stalnega osebja ali storitev. Poleg navedenega lahko starostniki na Danskem prebivajo v zasebnih domovih za oskrbo (friplejeboliger), ki so sestavljeni iz najemnih stanovanj za osebe z večjimi potrebami po storitvah in oskrbi. Delež ljudi, ki živijo v klasičnih domovih za starejše, se zmanjšuje tako v absolutnem in relativnem smislu. Od leta 2016 do leta 2018 se je število oseb, starejših od 65 let, v domovih za starejše zmanjšalo za 1,7 %, na 4,6 %. Če pa pogledamo delež oseb, starejših od 75 let, v domovih za starejših, je padec večji. Od leta 2016 do leta 2018 se je na primer delež oseb starejših od 75 let v domovih za starejše občane zmanjšal s 15 % na 12 %. Enak upad je mogoče opaziti tudi pri drugih starostnih skupinah. Zlasti starejši od 90 let vse pogosteje ostajajo v svojem domu (Danmarks Statistik, 2020a).

V **Avstriji** je leta 2019, glede na statistične podatke, 3.465 starejših živelo v alternativnih oblikah bivanja, kot so oskrbovana in varovana stanovanja (statistik Austria). Rast oskrbovanih stanovanj zelo narašča, saj se letno zgradi približno 1.500 oskrbovanih stanovanj, kar je 4 % vseh novogradenj velikega obsega. Po podatkih IBW (2020) je bilo v Avstriji v letu 2019 na voljo celo 17.000 oskrbovanih stanovanj (v primerjavi s približno 69.000 mesti v domovih), pri čemer številka ne vključuje stanovanj brez ovir. Iz tega je razvidno, da so javno dostopni statistični podatki o številu oseb v oskrbovanih stanovanjih nepopolni. Alternativne oblike bivanja za starostnike v Avstriji so tudi oskrbovane stanovanjske skupnosti za starejše (Betreute Seniorenwohngemeinschaften), oblike večgeneracijskega bivanja (Mehr-Generationen-Wohnen) in bivanje za pomoč (Wohnen fuer Hilfe), v okviru katerega starejši nudijo prenočišča študentom v zameno za pomoč pri dnevnih opravilih (oesterreich.gv.at).

**Na Finskem** Ministrstvo za socialne zadeve in zdravje (STM) v Priporočilu o kakovosti za zagotavljanje dobre kakovosti življenja in boljših storitev za starejše osebe 2017-2019 navaja, da je njegov namen tudi povečati ozaveščenost starejšega prebivalstva o pomenu vnaprejšnjega predvidevanja njihovih stanovanjskih potreb in povečati njihove možnosti izbire stanovanja glede na njihove prihodnje potrebe. Pri tem poudarja, da je treba izboljšati možnosti starostnikov, ki potrebujejo 24-urno oskrbo in nego, da živijo v okolju podobnem domu, kjer sta jim zagotovljena oskrba in pozornost, ki ju potrebujejo. V priporočilu so tako možnosti

za alternativne modele stanovanj z oskrbo za starejše osebe izražene jasneje kot v zakonodajnih besedilih (Lundman, 2020). Primer novih stanovanjskih rešitev z oskrbo za starejše na Finskem ter z njimi povezanih priložnosti in izzivov je koncept upokojenskega naselja Virkkulankylä, ki se razvija in uresničuje na več lokacijah po državi. Organizacijska struktura, ki stoji za delovanjem posamezne vasi, se razlikuje od projekta do projekta. Za razvoj koncepta Virkkulankylä in upravljanje vsakega projekta je večinoma odgovorno nepremičninsko podjetje. Prostorsko načrtovanje, projektiranje in gradbena dela pa opravljajo različna arhitekturna in gradbena podjetja. Storitve oskrbe, ki so na voljo v vsaki od vasi, zagotavljajo občine ali zasebna podjetja za socialne storitve. Socialne dejavnosti v vaseh in okolici organizirajo člani neprofitnega združenja Prijatelji Virkkule, ki je ustanovljeno v okviru vsake nove vasi. Cilj upokojenske vasi Virkkulankylä je povezati nastanitev in oskrbo starejših ljudi na način, ki posveča pozornost skupnemu življenju, aktivnemu staranju in družabnim stikom (Lundman, 2020).

Na **Hrvaškem** predstavljajo alternativne oblike bivanja rejniške družine za starostnike ter manjši družinski domovi za ostarele, pri kateri se storitve nudijo v objektu, v katerem živijo predstavnik družine in člani njegove družine. V manjših družinskih domovih za ostarele je nastanjenih najmanj 5, a največ 20 koristnikov (VRSTE SMJEŠTAJA | Domovi za starije (domovi-za-starije.com).

Ker so v **Španiji** za starejše tradicionalno skrbeli sorodniki, je na voljo manj skupnosti za starejše, oskrbovanih stanovanj, domov za ostarele ali centrov dnevnega varstva. Kljub temu se v Španiji vse bolj uveljavlja trend, da domove za ostarele ustanavljajo starejši sami. V tem primeru majhna skupina starejših skupaj kupi dom in si razdeli stroške. Vsakodnevna opravila so razdeljena med člane skupine. Skupinski dom izboljša tudi možnosti za druženje znotraj skupine (Elder and Long-Term Care for Expats in Spain - Elder Guru). Tudi v **Italiji** so zaradi tradicionalno velike vloge družine in otrok pri zagotavljanju dolgotrajne oskrbe, alternativne oblike bivanja za starejše zgolj omejeno razvite. Zakonsko urejena in vsaj delno standardizirana so zgolj varovana stanovanja in skupnostna socialna stanovanja za starejše ljudi (allogio sociale per anziani). Točni podatki o številu teh stanovanj niso na voljo (Guaita in Trabucchi, 2017; Costa, 2018).

V **Nemčiji** si vedno več ljudi želi v starosti živeti čim bolj samostojno. Nove oblike bivanja so na primer oskrbovana ali storitvena stanovanja, pri katerih se poleg najemne pogodbe sklene tudi pogodba o storitvah, v okviru katere so dogovorjene določene dodatne storitve in pomoč. Poleg tega so med alternativnimi oblikami bivanja tudi večgeneracijske hiše, kjer si mladi in stari pomagajo med seboj, ali "stanovanja za pomoč", kjer se posamezna stanovanja ali sobe oddajajo v najem študentom. V tem primeru študenti plačujejo nižjo najemnino, v zameno pa se morajo zavezati, da bodo pomagali stanovalcem hiše, ki potrebujejo pomoč, na primer pri gospodinjskih opravilih, nakupovanju ali obiskih uradov. Med nove oblike stanovanj spadajo tudi skupnosti za souporabo oskrbovanih stanovanj (PflegeWohngemeinschaft). Stanovalci skupnega stanovanja živijo v svojih sobah, kamor se lahko kadar koli umaknejo, hkrati pa se lahko v skupnih prostorih izvajajo tudi skupne dejavnosti (Bundesministerium fuer Gesundheit, e-vir). Pri tem pa ni zanesljivih statističnih podatkov o tem, koliko stanovanj za starejše je v Nemčiji in koliko stanovanjskih stavb je bilo zasnovanih kot brez ovir neposredno med so bili

urejeni brez ovir. Po oceni iz leta 2006 naj bi bilo več kot 90.000 stanovanj (91.671 stanovanjskih enot) v stanovanjih za starejše ali stanovanjih brez ovir (Kuratorium Deutsche Altershilfe, 2006).

**Češka** je izdala več dokumentov za spodbujanje deinstucionalizacije oskrbe starejših oseb. V zvezi s tem sta zlasti pomembna "Nacionalno poročilo o strategijah za socialno zaščito in socialno vključenost 2008-2010" (Národní akční plan sociálního začleňování 2008-2010) in "Kakovost življenja v starosti: Nacionalni program priprave na staranje 2008-2012" (Kvalita života ve stáří: Národní program přípravy na stárnutí), ki se osredotočata na aktivno staranje, vključevanje starejših v vsakodnevne dejavnosti v skupnosti ter spodbujata idejo, da bi morale starejše osebe, ki potrebujejo oskrbo, ostati na svojem domu ("ageing in place"). Szudi in drugi (2017) pa opozarjajo, da navedeni strateški dokumenti še niso zaživeli v praksi. Izven institucionalnega varstva naj bi se zagotavljale zgolj pomoči pri dnevnih opravilih, storitve oskrbe pa zgolj v manjšem obsegu. Ker socialno in zdravstveno varstvo zagotavljajo različne češke javne agencije, je te storitve mogoče vključiti le v tiste domove, kjer je zagotavljanje celovite socialne in zdravstvene oskrbe zagotovljeno z zakonom.

## Sklep

Članek je predstavil pregled socialne infrastrukture in storitev za bivanje in oskrbo starostnikov v desetih članicah Evropske unije. Med alternativne oblike glede na proučene ureditve, spadajo 1) vseživljenjske soseske, ki imajo fond "vseživljenjskih stanovanj" in dostopnih stanovanj za ljudi s potrebami po oskrbi, in se običajno nahajajo v bližini zdravstvenih centrov; 2) varovana stanovanja (ang. sheltered housing), ki stanovalcem nudijo oskrbo in druge storitve, ki vključujejo sistem zdravstvenega alarma (ang. medical alert system), negovalce in gospodinjsko pomoč. V varovanih stanovanjih starejši živijo samostojno, za stanovanje plačujejo najemnino, pogodbe za bivanje in za oskrbo pa so ločene; 3) oskrbovana stanovanja (assisted living, extra-care sheltered housing), ki se običajno nahajajo na območju domov za starejše. V njih stanovalci živijo samostojno kot v lastnem domu, za stanovanje pa plačujejo najemnino. Stanovalci lahko uporabljate storitve in pripomočke doma za starejše, kot so nujna medicinska pomoč, prehrana in dejavnosti. 4) kmetije za zeleno oskrbo kot posebna alternativna oblika izvajanja storitev oskrbe za starejše, v kateri so starejši vključeni v dnevno varstvo/oskrbo na kmetiji. Navedena oblika bivanja starostnikov je uveljavljena predvsem na Nizozemskem, pa tudi različne oblike sobivanja starejših in mlajših, tudi v okviru oddajanja sob študentom v večjih evropskih mestih.

Ugotavljamo, da je socialna infrastruktura za oskrbo starostnikov po državah članicah različno razvita, ter da obstajajo različni modeli upravljanja in financiranja socialne infrastrukture. Glavni upravitelji socialne infrastrukture so deležniki na lokalni ravni, kot so občine in stanovanjske organizacije, pri čemer slednje običajno delujejo v neprofitni obliki kot socialna podjetja ali stanovanjska združenja. Za razvoj ustrezne socialne oskrbe za starostnike so zelo pomembni zanesljivi viri financiranja, ki so bodisi nacionalni ali pa s strani mednarodnih organizacij. Podatki o institucionalni oskrbi starejših so v večini proučevanih držav dostopni, prav tako so dostopni podatki o številu razpoložljivih postelj za dolgotrajno oskrbo. Manjkajo

pa točni podatki o možnostih za alternativne oblike bivanja, ki naj bi sicer predstavljale zgolj manjši delež bivališč za starostnike. Za nadaljnji razvoj socialne infrastrukture za oskrbo in bivanje starostnikov bi bil smiseln razvoj registrov, ki bi poleg institucionalnega varstva vključevali tudi alternativne oblike bivanja.

**Literatura**


1) "Wohnen für Hilfe" (oesterreich.gv.at)

2) Alternative Wohnformen - Pflege-Wohngemeinschaften (bundesgesundheitsministerium.de)

3) Bazin, M., Muller, M. (2018). Le Recrutement en EHPAD. DREES. URL: https://drees.solidarites-sante.gouv.fr/IMG/pdf/er_1067.pdf.

4) Bevan, M., Croucher, K. (2011). Lifetime Neighbourhoods. London: Ministry of Housing, Communities and Local Government, Department for Communities and Local Government. URL: Research and analysis overview: Lifetime neighbourhoods - GOV.UK (www.gov.uk)

5) Bundesministerium fuer gesundheit (2015). Pflegebericht. URL: 161201_A3_Kabinettvorlage 6 Pflegebericht_6 Pflegebericht_41 (bundesgesundheitsministerium.de)

6) Casey, S. (2005). Establishing Standards for Social Infrastructure. UQ Boilerhouse Community Engagement Centre. URL: http://www.uq.edu.au/boilerhouse/index.html?page=33708

7) Centre for Public Impact (2018). Levensloopbestendige (Apartments for Life) in The Netherlands. URL: https://www.centreforpublicimpact.org/case-study/levensloopbestendige-netherlands

8) Chan, E., Freisfeld, C., Villarreal Anzaldo, A. (2018). Social Infrastructure: The Regeneration of Somers Town. URL: (PDF) Social Infrastructure: The Regeneration of Somers Town | Caroline Freisfeld - Academia.edu

9) CNSA (2019). Les Chiffres Clés de l'Aide à l'Autonomie URL: Les chiffres clés de l'aide à l'autonomie 2019 | CNSA

10) Costa, G. (2018) Re-Locating to Intermediate Housing + Old Age Care Structures in Italy. URL: Re-Locating to Intermediate Housing + Old Age Care Structures in Italy (openaire.eu)

11) Croucher, K. (2006). Making the Case for Retirement Villages. York, UK: Joseph Rowntree Foundation. Scharlach A, Davitt J, Lehning A, Greenfield E and Graham C (2014) Does the village model help to foster age-friendly communities? Journal of Aging and Social Policy zv. 26, str. 181–196.

12) Czischke, D., Carriou, C.n Lang, R. (2020). Collaborative Housing in Europe: Conceptualizing the Field, Housing, Theory and Society, št. 37, zv. 1, str. 1-9, DOI: 10.1080/14036096.2020.1703611.

13) Danmarks Statistik. URL: www.statistikbanken.dk.

14) de Bruin, S.R., Pedersen, I., Eriksen, S., Hassink, J., Vaandrager, L., Patil, G. G. (2020). Care Farming for People with Dementia; What Can Healthcare Leaders Learn from This Innovative Care Concept? Journal of Healthcare Leadership, zv. 10, str. 11-18.

15) Elder Guru (n.d.). Elder and Long-Term Care for Expats in Spain - Elder Guru

16) Evropska komisija (2021a). Ageing report. The 2021 Ageing Report: Economic and Budgetary Projections for the EU Member States (2019-2070) | European Commission (europa.eu).

17) Evropska komisija (2021b). Long Term Care Report, vol 2, Publications catalogue - Employment, Social Affairs & Inclusion - European Commission (europa.eu).

18) Fransen, L., del Bufalo, G., Reviglio, E. (2018). Boosting Investment in Social Infrastructure in Europe - Report of the High-Level Task Force on Investing in Social Infrastructure in Europe. Boosting Investment in Social Infrastructure in Europe | European Commission (europa.eu)

19) Guaita, A., Trabucchi, M. (2017). La residenzialità, in NNA (ed.), L'assistenza agli anziani non autosufficienti in Italia. 6° Rapporto. 2017/2018. Il tempo delle risposte, Santarcangelo di Romagna: Maggioli.

20) Howe, A., Jones, A., Tilse, C. (2013) What's in a name? Similarities and differences in international terms and meanings for older people's housing with services. Ageing & Society št. 33, str. 547–578.

21) IBW (2019) 2019 SL_IIBW Marktbericht_Seniorenwohnen_WEB.pdf

22) Kuratorium Deutsche Altershilfe (2006). Kuratorium Deutsche Altershilfe, 2006 - Bing

23) Lang, R., Carriou, C., Czischke, D. (2020). Collaborative Housing Research (1990–2017): A Systematic Review and Thematic Analysis of the Field, Housing, Theory and Society, št. 37, str. 10-39, DOI: 10.1080/14036096.2018.1536077.

24) Leung, M., Famakin I., Kwok T. (2017). Relationships between indoor facilities management components and elderly people's quality of life: A study of private domestic buildings. Habitat International, št. 66, str. 13–23.

25) Liddle, J., Scharf, T., Bartlam, B., Bernard, M. in Sim, J. (2014). Exploring the age-friendliness of purpose- built retirement communities: evidence from England. Ageing & Society št. 34, str. 1601–1629.

26) Lith, P., *Palveluasumisen markkinat Suomessa*, Tilastollinen selvitys toimialan palvelukysynnästä palveluntuottajista ja kiinteistöistä (2018). www.hyvinvointiala.fi.

27) Lundman, R. (2020). A spatio-legal approach to the intermediate housing-with-care solutions for older people: exploring the adoption of a retirement village concept in Finland. Ageing & Society, št. 40, str. 1956–1977.

28) MLSA (2015). Národní strategie rozvoje sociálních služeb na období 2016-2025. https://bit.ly/2Mnwe6N.

29) Nagl-Cupal, M., Kolland, F., Zartler, U., Mayer, H., Bittner, M., Koller, M., Parisot, V., Stöhr, D., Bundesministerium für Arbeit, Soziales, Gesundheit und Konsumentenschutz (Hg.) (2018): Angehörigenpflege in Österreich. Einsicht in die Situation pflegender Angehöriger und in die Entwicklung informeller Pflegenetzwerke. Universität Wien. Aktuelle Studie der Universität Wien: Angehörigenpflege in Österreich - Lazarus

30) Perrine, L. (2015). Role of social infrastructure in local and regional economic development. RDSA Regional Infrastructure Summit. Department of Planning Western Australia. URL: http://www.sgsep.com.au/assets/insights/Linda-Perrine-Social-Infrastructure- presentation-0.pdf

31) Regnier, V. (2013). USC Apartmentfor Life. San Francisco, CA: Blurb.

32) Republika Hrvatska (2019). Godišnje statisticko izvjesce o domovima i korisnicima socijalne skrbi 2019..pdf (gov.hr)

33) Scharlach, A., Davitt, J., Lehning, A., Greenfield, E., Graham, C. (2014). Does the village model help to foster age-friendly communities? Journal of Aging and Social Policy št. 26, str. 181–196.

34) Statistik Austria. https://pic.statistik.at/web_de/statistiken/index.html.

35) Szüdi, G., Szüdi, J., Kubalčíková, K., Havlíková, J. (2017). The de-institutionalisation of care for older people in the Czech Republic and Slovakia: national strategies and local outcomes. v: Martinelli, F., Anttonen, A., Mätzke, M. (ur.): Social Services Disrupted Changes, Challenges and Policy Implications for Europe in Times of Austerity, Edward Elgar Publishing, str. 239–259.

36) Vaznonienė, G., Kiaušienė, I. (2018). Social Infrastructure Services for Promoting Local Community Wellbeing in Lithuania. European Countryside, zv. 10, let. 2018, št. 2, str. 340-354.

37) Verbeek, H., Zwakhalen, S., Rossum, E., Ambergen, T. Kempen, G., Hamers, J. (2010). Small-scale, homelike facilities versus regular psychogeriatric nursing home wards: A cross-sectional study into residents' characteristics. BMC Health Services Research, 10, 30. URL: http://www.biomedcen- tral.com/1472-6963/10/30

38) VRSTE SMJEŠTAJA | Domovi za starije (domovi-za-starije.com)

39) WLGA (2017). Draft Findings for Discussion – Wales Market Analysis of Care Homes for Older people. URL: www.wlga.wales/introduction-to-market-analysis-of-care-homes-in-wales.

# Return on investments in social infrastructure for older adults

**Valerija Rogelj**

Institute INRISK, Slovenia
david.bogataj@epf.nova-uni.si

**David Bogataj**

University of Ljubljana, School of Economics and Business
Institute INRISK
david.bogataj@ef.uni-lj.si

**Abstract**

In this paper, we developed a new approach to modelling social return on investments in social infrastructure for older adults. Functional decline of population in a studied area influences demand for social infrastructure such as age friendly housing and barrier free public spaces which mitigates public expenditures for health care and long-term care services. The multistate transition model of functional decline is used, and actuarial present values are calculated. There are no documents prepared by the European Commission with the methodology for measurement of social return on investments in social infrastructure for older adults, although the Commission stresses the need to develop such a model. The model has been designed to support policymakers decide whether and in what extent to invest in social infrastructure for older adults.

Keywords: social infrastructure, ageing, long-term care, specialised housing, investments.

# Donosnost naložb v socialno infrastrukturo za starejše

**Povzetek**

V tem prispevku smo razvili nov pristop k modeliranju družbene donosnosti naložb v socialno infrastrukturo za starejše odrasle. Funkcionalni upad prebivalstva na proučevanem območju vpliva na povpraševanje po socialni infrastrukturi, kot so starosti prijazna stanovanja in javni prostori brez ovir, kar blaži javne izdatke za zdravstveno varstvo in storitve dolgotrajne oskrbe. Uporabljen je model mnogoterih pojemanj funkcionalnih zmožnostia, izračunane pa so aktuarske sedanje vrednosti. Evropska komisija ni pripravila dokumentov z metodologijo za merjenje družbene donosnosti naložb v socialno infrastrukturo za starejše odrasle, čeprav poudarja, da je treba tak model razviti. Model je bil zasnovan kot pomoč oblikovalcem politik pri

odločanju, ali in v kakšnem obsegu vlagati v socialno infrastrukturo za starejše odrasle.

Ključne besede: socialna infrastruktura, staranje, dolgotrajna oskrba, specializirana stanovanja, naložbe.

## Uvod

Sprejemanje odločitev o selitvah starostnikov je zapleten proces, modeliranje tega kompleksnega procesa pa zahteva natančno preverjanje različnih vidikov. Na odločitev o selitvi vpliva več različnih dejavnikov, kot so razlogi preselitve, čas preselitve (starost prebivalca), funkcionalne zmožnosti stanovalca in lastnosti prebivališča. Kakovost in razpoložljivost starostnikom prilagojenih stanovanj, upad funkcionalnih zmožnosti ter družinski status starostnika so pomembni dejavniki, ki lahko vplivajo na čas preselitve v DSO. Na trenutek preselitve starostnika vpliva kakovost in prilagojenost stanovanjskih enot in javnih površin v okolici stanovanjske enote. Trenutek preselitve se lahko pospeši ali upočasni. Do preselitve lahko pride zaradi številnih razlogov, zaradi česar je treba uporabiti aktuarski model mnogoterih pojemanj za modeliranje tranzicij oziroma selitev med različnimi tipi bivališč ob preselitvi, ki vključuje starost ob preselitvi. Po znatnem zmanjšanju funkcionalnih zmožnosti obstaja prag funkcionalnih nezmožnosti, ko mora starejša odrasla oseba prilagoditi svoje stanovanje funkcionalnim zmožnostim ali se preseliti v dom starejših občanov (DSO). Izbira med tema dvema možnostima je odvisna od opcij, ki jih občanu nudi občina.

Če želi ostati starostnik samostojen in avtonomen, mora svoje bivališče prilagoditi svojim funkcionalnim zmožnostim. Ko njegove funkcionalne zmožnosti padejo pod prag funkcionalne zmožnosti, pa je treba njegovo bivalno okolje, ki ga ni moč ustrezno prilagoditi, zapustiti in mu omogočiti preselitev v bivalno okolje brez ovir (Demirkan, Olguntuerk, 2014, str. 90). Zato je pred odločitvami za nove naložbe v oskrbovana stanovanja treba poiskati obstoječe ovire oziroma prage funkcionalnih nezmožnosti in oceniti rizike, ki so jim posamezne starostne kohorte glede na njihove funkcionalne zmožnosti izpostavljene v tem prostoru. Pri določanju ustreznosti bivališča je treba upoštevati verjetnosti, da se bo stanovalec, ki je pripadnik neke kohorte, ob danih prostorskih nevarnostih poškodoval ali zbolel in bo potreben ter deležen dražje oskrbe, kot na primer intenzivne dolgotrajne oskrbe v DSO ali v negovalni bolnici.

Funkcionalne zmožnosti stanovalcev upadajo z različno intenzivnostjo. Posamezne nevarnosti in verjetnosti nastanka nesreče so odvisne tudi od okolja in obsega oskrbe, kar lahko opišemo z verjetnostjo prehodov med kategorijami dolgotrajne oskrbe in verjetnostjo selitev med različnimi tipi bivališč (Bogataj, et al., 2015a, str. 205 in 2015b, str. 27; Williams et al., 1994, str. 117). Te verjetnosti se ugotavljajo iz relativne frekvence dogodkov v nekem tipu bivališča za vsako kohorto in kategorijo funkcionalnih zmožnosti posebej. Kot sledi iz aktuarskega modela mnogoterih pojemanj (v nadaljevanju tudi model) v nadaljevanju, je za izhodišče numeričnega primera uporabljena kategorizacija zdravstvene nege, kot jo določa ZZZS v Splošnem dogovoru za pogodbeno delo (ZZZS, 2016a, 2019a). Verjetnosti selitev med tipi bivališč zaradi upada funkcionalnih zmožnosti starostnikov oziroma

stanovalci so v tem prispevku ocenjene na temelju analize podatkov ZZZS (2016a, 2019a) in SSZS (2016, 2019).

Za učinkovito načrtovanje oskrbe, tipov bivališč starostnikov in potrebnega stanovanjskega sklada so bile uporabljene aktuarske metode. Za proučevanje izvedbe dolgotrajne oskrbe v okviru dostopne stanovanjske strukture pa so bili uporabljeni ustrezni podatki o starostnikih oziroma oskrbovancih v Sloveniji po spolu, starosti, regijah in kategorijah zdravstvene nege. Na tej osnovi so bile izračunane verjetnosti stanj in selitev med posameznimi kategorijami zdravstvene nege po spolu, starosti, regijah in kategorijah zdravstvene nege.

Diskretni pristop k zveznemu aktuarskemu modelu mnogoterih pojemanj (Bogataj et al. 2015a, str. 205) je lahko uporabljen tudi pri spremljanju in načrtovanju kapacitet bivališč in obsega izvajanja oskrbe v sistemu dolgotrajne oskrbe. Zato je bil v okviru tega prispevka na osnovi pregleda literature pripravljen predlog za model zajemanja in obdelave podatkov v sistemu statističnih raziskav, pomembnih za vso državo. Prikazali smo tudi, kako je mogoče ob tako razvitih modelih in ob dosegljivosti predlaganih podatkovnih baz izračunati pričakovano trajanje bivanja v posameznem tipu bivališča ob različni intenzivnosti dolgotrajne oskrbe. Število prehodov v posamezni kategoriji zdravstvene nege je namreč lahko primerno izhodišče za načrtovanje obsega in tipov bivališč, kataloga storitev ter obsega financiranja v okviru dolgotrajne oskrbe.

Na podlagi javno dostopnih podatkov o strukturi prebivalstva, številu umrlih (SURS, 2017, e-vir) in o oskrbovancih po kategorijah zdravstvene nege (ZZZS, 2016, e-vir) je bilo za načrtovanje tipov bivališč za starostnike izvedena simulacija števila prehodov oskrbovancev v posameznih kategorijah zdravstvene nege in izveden izračun verjetnosti prehodov med posameznimi kategorijami zdravstvene nege v Sloveniji. Na osnovi prehodov oskrbovancev med kategorijami zdravstvene nege je mogoče prikazati število selitev med tipi bivališč zaradi upada funkcionalnih zmožnosti stanovalcev. Na enak način pa je izračun verjetnosti selitev med poljubnimi kategorijami dolgotrajne oskrbe možno izdelati kjer koli v svetu, kjer imajo podatke o oskrbovancih opredeljene po kategorijah dolgotrajne oskrbe.

Za celotno populacijo oskrbovancev v Sloveniji so bile izdelane naslednje tabele in ocenjene vrednosti:

- tabele porazdelitve oseb po starosti in stanjih modela; kot začetno stanje smo upoštevali populacijo oseb, starih 65 let in več za leta 2013, 2014, 2015 in 2016 v Sloveniji na temelju podatkov SURS, objavljenih na podatkovnem portalu SURS (2017, e-vir): »Prebivalstvo po: kohezijska regija, starost, polletje, spol«, ter podatkov iz ZZZS, SSZS, objavljenih v »Povzetek 2016« s porazdelitvijo prebivalstva glede na stanja.

Posameznik se nahaja v stanju *i*, pri čemer stanje *i* predvideva naslednja možna stanja:

- živ, popolnoma sposoben samooskrbe (s popolnimi funkcionalnimi zmožnostmi) (0);
- živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji I;

  - živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji II in
  - živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji III;
- tabele posameznih prehodov med stanji oziroma kategorijami zdravstvene nege oziroma selitev med tipi bivališč; pri tem smo upoštevali podatke SURS (2017, e-vir) o številu umrlih v Republiki Sloveniji po starostnih razredih v letih 2013, 2014, 2015, 2016. Število prehodov med kategorijami zdravstvene nege v letih 2013, 2014, 2015, 2016 je bilo ocenjeno po starosti in med naslednjimi stanji (prehod v stanje j, selitev v tip bivališča j):
  - živ, popolnoma sposoben samooskrbe (s popolnimi funkcionalnimi zmožnostmi) (0);
  - živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji I;
  - živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji II;
  - živ, delno sposoben samooskrbe (z zmanjšanimi funkcionalnimi zmožnostmi), potreben zdravstvene nege v kategoriji III in
  - verjetnost za smrt (IV);
- tabela ocen števila selitev; gre za seštevek ocen tabel po posameznih prehodih oskrbovancev. Selitve stanovalcev so prikazane po starosti, po spolu ter po posameznih kategorijah zdravstvene nege;
- tabela porazdelitve oseb po starosti in stanjih modela; prikazano je število oseb, starih 65 let in več v posameznih starostnih razredih in posameznih stanjih modela. Končno stanje je od začetnega stanja odšteto število izhodov iz posameznih stanj in prišteto število prihodov v posamezna stanja;
- tabela verjetnosti preživetja po posameznih starostnih razredih in posameznih stanjih modela mnogoterih pojemanj zaradi upada funkcionalnih zmožnosti starostnika; primerjalo smo končno stanje števila oseb po posameznih starostnih razredih in posameznih stanjih modela z začetnim stanjem števila oseb po posameznih starostnih razredih in posameznih stanjih modela;
- tabela vsot verjetnosti preživetja v posameznem stanju za osebe, stare 65 let in več; izračunali smo pričakovano trajanje življenja za osebe izven sistema dolgotrajne oskrbe in v socialnovarstvenih zavodih, razporejene v kategorije zdravstvene nege ter
- tabela verjetnosti prehodov oziroma selitev; upoštevali smo prehode/selitve za eno stanje, prehode/selitve za dve stanji, prehode/selitve za tri stanja in prehode/selitve za štiri stanja.

Verjetnosti prehodov oskrbovancev med posameznimi kategorijami zdravstvene nege in verjetnosti selitev stanovalcev med posameznimi tipi bivališč so bile izračunane po posameznih enoletnih starostnih razredih in posameznih stanjih modela. Rezultati simulacije so pokazali, da je število prehodov med posameznimi

kategorijami zdravstvene nege primerno orodje za načrtovanje tipov bivališč v okviru institucionalne in skupnostne oskrbe starostnikov.

Raziskovanje zagotovlja nadaljnji razvoj modela za napovedovanje potreb oseb, ki so odvisne od pomoči drugih (na ravni občine, skupine občin oziroma lokalne akcijske skupine, statistične regije). Model je bil predhodno zasnovan na teoretičnih temeljih za druge namene (Bogataj et al. 2015a, str. 205), tukaj pa smo ga uporabili za dolgotrajno oskrbo. Uporabljeni podatki so bili pridobljeni iz javno objavljene demografske statistike SURS-a, statistike stanj kapacitet po DSO in javno objavljene statistike prošenj po nastanitvah v DSO, ki jo spremlja SSZS, podatkov GURS o stanju oskrbovanih stanovanj ter internih podatkov o številu oskrbovancev po DSO in kategoriji zdravstvene nege ZZZS za leta 2013, 2014, 2015 in 2016 (ZZZS, 2016, interno gradivo). Verjetnosti prehodov med kategorijami zdravstvene nege izhajajo delno iz kvantitativnih (ZZZS, 2016, interno gradivo) in delno iz kvalitativnih raziskav (Kavšek, 2019, več strani). Upoštevali smo tudi ankete med predstavniki lokalnih skupnosti oziroma izvajalci dolgotrajne oskrbe v teh skupnostih.

V nadaljevanju je razvit model zajemanja in obdelave podatkov iz različnih institucij na lokalni ter državni ravni za izboljšanje nacionalnih statističnih podatkov. Verodostojni statistični podatki so nujni za razvoj ustreznih kapacitet in za učinkovito ter uspešno dolgoročno dolgotrajno oskrbo in stanovanjsko oskrbo starostnikov v Sloveniji.

## Model selıtev ın projekcıje

Za uspešno napovedovanje različnih stanovanjskih potreb ob upadanju funkcionalnih zmožnosti starostnikov in dejanskem povpraševanju je treba izračunati verjetnostne porazdelitve $T(x)$ za pričakovano trajanje bivanja v posameznih tipih bivališč in modelirati verjetnosti selitev iz stanja »živ, s popolnimi funkcionalnimi zmožnostmi« v lastnem družinskem domu v drugo, bolj primerno stanovanjsko enoto zaradi upada funkcionalnih zmožnosti ali pa smrt (stanje »mrtev«). Pri aktuarskem modelu mnogoterih pojemanj je množica tipov bivališč označena s $H$, pri čemer model obsega $m$ bivalnih možnosti in pri čemer se predpostavlja, da obstajajo $m$+1 stanj, ki predstavljajo bivanje v različnih tipih bivališč, ter selitev med njimi, torej iz enega tipa bivališča v drug tip bivališča (manjše in bolj dostopne stanovanjske enote za različne stopnje samostojnosti življenja). Izhodiščno stanje ($i$ = 0) je označeno kot stanje 0 in selitev v stanje $j$: $j$ = 1, 2, …, $m$. V modelu so izračunane verjetnosti selitev iz stanja 0 oziroma splošno iz stanja $i \in H$ v stanje $j$, $j \in H$ v različnih časovnih točkah, ki so za potrebe raziskovanja ocenjene na osnovi javno razpoložljivih podatkov.

V aktuarskem modelu mnogoterih pojemanj ni mogoča selitev med katerima koli dvema bivališčema $i$ in $j$, $i > j$ = 1, 2, ..., $m$, medtem ko so v aktuarskem modelu prehodov med mnogoterimi stanji takšni prehodi možni (Gerber, 1997, str. 75; Deshmukh, 2012, str. 1). Ob predpostavki, da se lahko starostniki selijo med različnimi tipi bivališč oziroma stanji samostojnega življenja v mestih ali izven mest, v ločenih stanovanjskih enotah ali v skupnostih za starostnike, začasno ali stalno v oskrbovana stanovanja, negovalne bolnišnice ali domove za ostarele oziroma da odidejo iz sistema (migracija, smrt), se za namen raziskovalnega modela predpostavlja naslednje:

- ($x$): starostnik je star $x$ let;
- $H$: množica vseh možnih tipov bivališč, vključenih v stanovanjski sklad;
- $T_i(x)$: pričakovano trajanje bivanja starostnika, starega $x$ let v bivališču tipa $i$ ($i \epsilon H$);
- $x+T_i(x)$: pričakovan trenutek, ko se starostnik, star $x$ let, pri starosti $x+T_i(x)$ preseli iz obstoječega bivališča tipa $i$ v bivališče tipa $j$ ($i,j \epsilon H$), kar pomeni selitev v bolj prilagojeno bivališče oziroma smrt obravnavanega stanovalca, pri čemer je $T_i(x)$ slučajna spremenljivka z ugotovljeno porazdelitveno funkcijo $G_i(t)$:

$$\square_{\square}(\square) = \square\square(\square_{\square} < \square), \square \ \square \ \square \qquad (0\text{-}1)$$

Funkcija $G_i(t)$ je porazdelitvena funkcija, ki opisuje verjetnost, da se starostnik preseli v eno od vrst bivališč $i \epsilon H$ za starostnike ali umre v $t$ letih. Predpostavlja se, da je verjetnost porazdelitve $T_i$ znana, $G_i(t)$ stalen in ima gostoto verjetnosti $g_i(t)=G_i'(t)$, kot sledi:

$$\square_{\square}(\square)\square\square = \square\square(\square < \square_{\square} < (\square + \square\square)), \square \ \square \ \square \qquad (0\text{-}2)$$

Formula za $g_i(t)dt$ opisuje verjetnost, da se bo stanovalec preselil iz stanovanjske enote i v stanovanjsko enoto tipa $j$ v infinitezimalno majhnem časovnem intervalu od $t$ do $t+dt$.

Verjetnost, da se bo stanovalec, star $x$ let, v stanju $i$ (v stanovanjski enoti tipa $i$) preselil v stanovanjsko enoto tipa $j$ v $t$ letih, zapisana kot ${}_tq_x(i,j)$:

$$\square\square_{\square}(\square,\square) = \square(\square,\square;\square) \qquad (0\text{-}3)$$

Ob tem se predpostavlja, da je vrednosti ${}_tq_x(i,j)$ mogoče pridobiti v javnih statistikah na osnovi števila stanj in selitev med različnimi tipi bivališč ter v študijah kupne moči in vpliva na dejansko povpraševanje na stanovanjskem trgu.

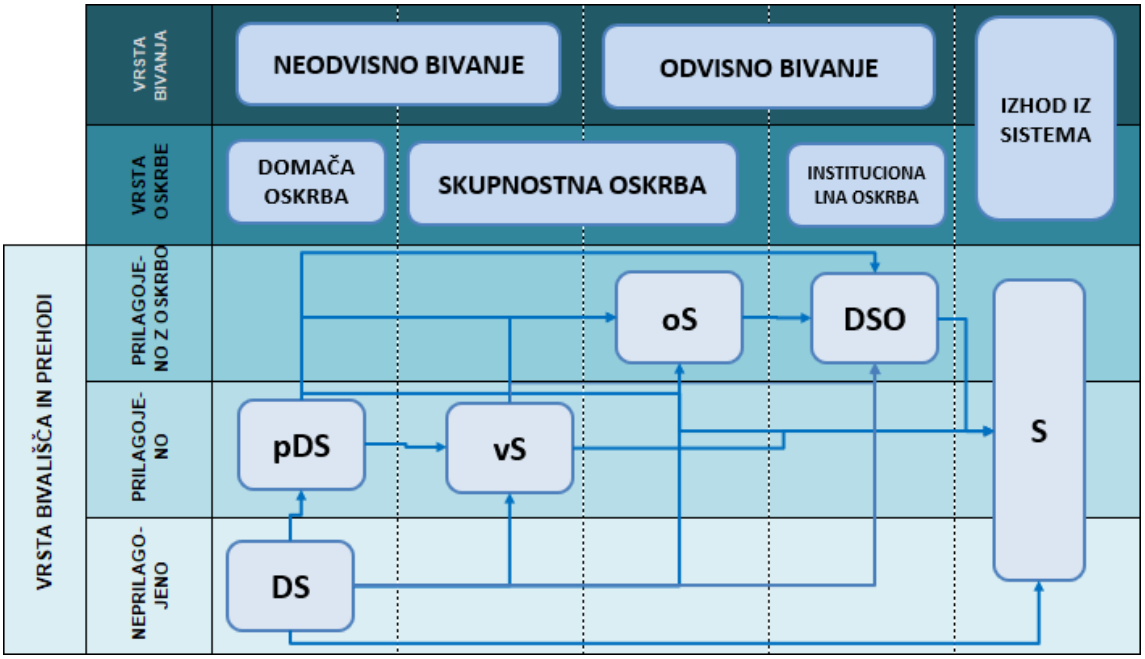
Aktuarski model mnogoterih pojemanj izhaja iz predpostavke, da je znano, kako dejansko tip bivališča vpliva na pričakovano trajanje bivanja, pri čemer se maksimizira $T_i(x)$ v skupnosti (prilagojeno družinsko stanovanje - pDS, varovano stanovanje - vS in oskrbovano stanovanje - oS). Prıspevek se omejuje le na tip bivališča »oskrbovano stanovanje - oS«, kjer je $T_i(x)$ daljši, kadar so poleg ustreznega bivalnega okolja zagotovljene tudi storitve dolgotrajne oskrbe. Kot že navedeno, tega v Sloveniji še ni, na voljo pa so podatki za Veliko Britanijo (Wood, 2017, str. 2 in 3).

Slika 1 prikazuje začetno stanje $i$=DS in vse možne selitve iz družinskega okolja (DS, družinsko stanovanje) skozi specializirane tipe bivališč $j \epsilon H$, ki omogočajo različne vrste selitev, možnosti za migracijo iz regije ali upokojitve v obstoječem družinskem domu, neposredno ali posredno, kot na primer:

- prilagoditev družinskega doma upadlim funkcionalnim zmožnostim starejšega stanovalca (prilagojeno družinsko stanovanje - pDS);

- preselitev v bolj primerno specializirano stanovanjsko enoto, za samostojno življenje ali za prejemanje oskrbe (varovano stanovanje - vS; oskrbovano stanovanje - oS);
- preselitev v bivališče, kjer je zagotovljena dolgotrajna oskrba v institucionalnem okolju (DSO);
- smrt (S) skladno s tablicami umrljivosti (AZN, 2016).

*Slika 1: Diagram selitev med različnimi tipi bivališč starostnikov: iz lastnega doma do doma starejših občanov (DSO) v okviru modela mnogoterih pojemanj.*




Legenda: DS – (neprilagojeno) družinsko stanovanje, pDS – prilagojeno družinsko stanovanje, vS – varovano stanovanje, oS – oskrbovano stanovanje, DSO – dom starejših občanov, S – smrt.

Vir: prirejeno po Bogataj et al., 2016b, str. 2–13.

Selitve med tipi bivališč družinsko stanovanje (DS) in prilagojeno družinsko stanovanje ni treba usmerjati in ne zahtevajo selitve iz oziroma v stanovanjsko enoto ali selitev. Vendar pa pomenijo ustvarjanje bolj varnega in funkcionalnim zmožnostim starostnika prilagojenega stanovanja. Lahko pomenijo tudi spremenjene možnosti za dostop do potrebnega obsega storitev pri avtonomnem življenju, kjer lahko stanovalec prejema različne vrste storitev glede na njegove funkcionalne zmožnosti in zdravstveno stanje in glede na prag funkcionalne nezmožnosti. Slednji je v veliki meri odvisen od grajenega okolja in razpoložljivih storitev, ki so včasih potrebne, včasih pa ne. Primer takih storitev v okviru tipa bivališča (ne/prilagojeno družinsko stanovanje) je patronaža ob spreminjajočem se zdravstvenem stanju stanovalca.

Kot je bilo že v uvodu tega podpoglavja navedeno, model vključuje celoštevilčni del pričakovanega trajanja bivanja stanovalca, starega *x* let, v stanovanjski enoti *i*. Ob predpostavki, da $K_i=[T_i]$, kjer $T_i$ predstavlja trajanje bivanja (angl. *tenure*; število let, ki jih preživi oseba, stara *x* let, v stanovanjski enoti tipa *i*) v bivališču tipa *i* za osebo, staro *x* let, $K_i$ pa predstavlja celoštevilčno, torej skrajšano trajanje bivanja (angl. *curtate tenure living*) stanovalca, starega *x* let, v stanovanjski enoti tipa *i*, preden se ta stanovalec *x* preseli v stanovanjsko enoto tipa *j*. Verjetnost celoštevilčne vrednosti slučajne spremenljivke $K_i$ (angl. *integer–valued random variable*) je podana z:

$$\square\square(\square_{\square} = \square) = \square\square(\square \leq \square_{\square} < \square + 1) = \sum_{\square=\square} {}_{\square}\square_{\square}(\square, \square)\square_{\square,\square+\square} \qquad (0\text{-}4)$$

kjer je $\sum_{\square=\square} {}_{\square}\square_{\square}(\square,\square)\square_{\square,\square+\square}$ vsota nad vsemi nasledniki *j* vozlišča *i*, $\Gamma \subset H$, v grafu.

## Model družbene vrednosti

V tem poglavju je prikazan pristop k razvoju modela vrednotenja družbene vrednosti, ustvarjene z vlaganji v oskrbovana stanovanja na temelju aktuarske matematike. Kot prvič v svetu je razvit model merjenja družbene vrednosti, ustvarjene z vlaganji v oskrbovana stanovanja kot razlike med aktuarsko sedanjo vrednostjo izdatkov za zdravstveno varstvo, povezanih z razlogom za selitev zaradi posledic nesreče (na primer zlom kolka pri padcu) in izdatkov za doživljenjsko dolgotrajno oskrbo starejših stanovalcev prvotnega stanovanjskega sklad ter starejših stanovalcev izboljšanega stanovanjskega sklada (z vključenimi oskrbovanimi stanovanji), ki poveča množico možnih izbir bivališč starostnikov z upadajočimi funkcionalnimi zmožnostmi in s tem predstavlja bolj varno ter funkcionalnim zmožnostim starostnikov prilagojeno stanovanjsko izbiro. Model vrednotenja družbene vrednosti, ki sledi, omogoča merjenje kakovosti stanovanjskega sklada glede na pričakovano trajanje bivanja v posameznem tipu bivališča, upoštevajoč izdatke za zdravstveno varstvo in doživljenjsko dolgotrajno oskrbo stanovalcev.

Padec s posledico zloma kolka je pogost razlog za potrebo po intenzivnejši dolgotrajni oskrbi, ki je starostnikom v Sloveniji trenutno dostopna le v socialnovarstvenih zavodih oziroma v DSO. Model vrednotenja družbene vrednosti, razvit in predstavljen v nadaljevanju, pokaže, kako je mogoče upravičiti naložbe v specializirane stanovanjske enote za starostnike in v razvoj stanovanjskega sklada z oskrbovanimi stanovanji, ki je varnejši in prilagojen funkcionalnim zmožnostim starostnikov. Takšne investicije namreč zmanjšujejo incidenco padcev in intenziteto selitev v domove za DSO, s čimer se lahko zmanjšajo izdatki za storitve zdravstvenega varstva. Posledično se znižajo izdatki zdravstvene blagajne in se tako omogoči, da se del sredstev, namenjenih kurativi v zdravstvu, preusmeri v izgradnjo ustreznega stanovanjskega sklada oskrbovanih stanovanj, v katerih se izvajajo storitve dolgotrajne oskrbe. Aktuarski model vrednotenja družbene vrednosti v nadaljevanju prikazuje, da vzdržna vseobsežna politika obvladovanja javnih izdatkov za oskrbo starostnikov zahteva večjo dinamiko naložb v starostnikom prijazno okolje ter specializirani stanovanjski sklad. Celo dokumenti

OECD: Guidelines for estimating long-term care expenditures (OECD, 2006),

Compendium of OECD well-being indicators (OECD, 2011), Health at a glance 2013. OECD Indicators (OECD, 2013a), A Good Life in Old Age? Monitoring and Improving Quality in Long-term Care (OECD, 2013b) in Ensuring Quality of long-term care for older people (OECD, 2015) navajajo potrebo po razvoju takih modelov in trdijo, da taki modeli še niso razviti.

Opredelitev družbene vrednosti oskrbovanih stanovanj, ki je – upoštevajoč sicer nejasne definicije tujih avtorjev - predstavljena v nadaljevanju, se glasi:

»Družbena vrednost oskrbovanih stanovanj je razlika med aktuarsko sedanjo vrednostjo izdatkov za zdravstveno varstvo, vezanih na razlog preselitve, in izdatkov za doživljenjsko dolgotrajno oskrbo starostnikov, med dvema različnima stanovanjskima strukturama.«

Navedeno je matematično zapisano kot:

$$DV_{65} = ASV_{65}(SS_1) - ASV_{65}(SS_2) \qquad (0\text{-}5)$$

in kjer je:

- $DV_{65}$: družbena vrednost oskrbovanih stanovanj za starostnika, starega 65 let in več;
- $ASV_{65}(SS_1)$: aktuarska sedanja vrednost izdatkov za zdravstveno varstvo in dolgotrajno oskrbo starostnika, starega 65 let in več v primeru stanovanjskega sklada, ki ne vključuje varovanih in oskrbovanih stanovanj (*SS1*);
- $ASV_{65}(SS_2)$: aktuarska sedanja vrednost izdatkov za zdravstveno varstvo in dolgotrajno oskrbo starostnika, starega 65 let in več v primeru stanovanjskega sklada, ki vključuje varovanih in oskrbovanih stanovanj (*SS2*).

»Aktuarska sedanja vrednost (ASV) izdatkov za zdravstveno varstvo, ki so vezani neposredno na selitev v dom starejših občanov in izdatkov za doživljenjsko dolgotrajno oskrbo starostnikov je nižja, kadar imajo starostniki možnost selitve v oskrbovana stanovanja, ko jim funkcionalne zmožnosti upadejo do te mere, da ne morejo več varno živeti v svojem družinskem domu. To razliko imenujemo družbena vrednost oskrbovanih stanovanj«.

Za vrednotenje družbene vrednosti naložb v oskrbovana stanovanja smo v nadaljevanju storili naslednje:

- razvili smo osnovni model, v strukturo stanovanjskega sklada pa smo uvedli nove tipe stanovanj, s katerimi bo stanovanjski sklad bolj prilagojen funkcionalnim zmožnostim starostnikov. Zato so na grafu selitev dodani tipi stanovanj, verjetnosti selitev med bivališči pa so podane v razširjeni matriki selitev;
- uvedli smo metodo ocenjevanja aktuarske sedanje vrednosti izdatkov za zdravstveno varstvo, ki so vezani na selitev v DSO, in izdatkov za doživljenjske dolgotrajno oskrbo v odvisnosti od strukture stanovanjskega sklada;
- uvedli smo verjetnostne porazdelitve časa, ki ga bo prebivalec porabil v obstoječem bivališču tipa *i* (Bogataj et al., 2016a, str. 68 in 2016b, str. 2); in
- kot novost smo predstavili metodo merjenja družbene vrednosti vlaganj v stanovanjske sklade kot razliko med aktuarskima sedanjima vrednostima

(ASV) izdatkov za zdravstveno varstvo in izdatkov za doživljenjsko dolgotrajno oskrbo med dvema različnima stanovanjskima skladoma (različna struktura stanovanjskega sklada). Po mnenju Wood (2017, str. 2 in 3) ter poročilih Evropske komisije (2014) je takšen model bistven za oblikovalce politik in še ni bil razvit.

V aktuarskem modelu družbene vrednosti se predpostavlja, da se stanovalec preseli iz tipa bivališča *i* v tip bivališča *j*, ko ta optimalno ustreza njegovim funkcionalnim zmožnostim in zanj predstavlja najbolj varno izbiro bivališča z vidika fizičnih (padci), energetskih (neustrezno ogrevanje bivališča) in socialnih tveganj (osamljenost in druge vrste socialne izključenosti). Aktuarski model družbene vrednosti vključuje pet skupin bivališč z različnimi storitvami dolgotrajne oskrbe: obstoječe, neprilagojeno družinsko stanovanje (DS), prilagojeno družinsko stanovanje (pDS), varovano stanovanje (vS), oskrbovano stanovanje (oS) in DSO.

Verjetnost selitve med posameznimi tipi bivališč je v aktuarskem modelu družbene vrednosti izračunana na podlagi rezultatov anketiranja starejših oseb in opazovanja preteklega upadanja funkcionalnih zmožnosti stanovalcev in selitev stanovalcev iz enega tipa (*i*) bivališča v drugega (*j*). V aktuarskem modelu vrednotenja družbene vrednosti niso možne selitve med katerima koli dvema tipoma bivališča, od bivališča tipa *i* do bivališča tipa *j* ($i > j = 1, 2, ..., m$ – usmerjeni graf ali model mnogoterih pojemanj; angl.: *multiple decremet model*). Toda v primeru večsmernih prehodov so možni tudi povratni prehodi zaradi izboljšanja funkcionalnih nezmožnosti (Deshmukh, 2012, str. 1), zato se lahko tudi uporaba stanovanjskega sklada modelira z večsmernim modelom (model mnogoterih prehodov med stanji; angl.: *multistate transition model*).

Selitve med posameznimi tipi bivališč so zaporedni pojav glede na funkcionalne zmožnosti stanovalcev, varnost in prilagojenost bivališč posameznim kategoriziranim funkcionalnim stanjem starostnikov in razpoložljivo intenziviteto oskrbe. Za namen predstavitve aktuarskega modela družbene vrednosti so tipi bivališč označeni na naslednji način:

- $i = 0$ (stanovanjska enota ali družinska hiša brez posebnih prilagoditev za starejše in s stanovalci brez potreb po oskrbi in kjer lahko stanovalci živijo avtonomno glede na njihove funkcionalnimi zmožnostmi – DS);
- $i = 1$ (prilagojeno družinsko stanovanje – pDS);
- $i = 2$ (varovano stanovanje – vS);
- $i = 3$ (oskrbovano stanovanje – oS);
- $i = 4$ (dom starejših občanov – DSO) ter
- $i = 5$ (grob – S).

V Tabeli 1 je prikazan pregled možnih selitev med tipi bivališč. Tip bivališča, v katerem prebiva starostnik, je označen z i (i = 0 do 4), medtem ko je tip bivališča, v katerega se obravnavani starostnik preseli zaradi upada funkcionalnih zmožnosti, označen z j (preselitev iz tipa bivališča i v tip bivališča j; j = 1 do 5). Možne selitve iz enega tipa bivališča v drugega, ki je prilagojen upadlim funkcionalnim zmožnostim stanovalcev, so oblikovane kot usmerjeni graf (Slika 2), kot poenostavljen prikaz (Tabela 1) oziroma so predstavljene matrično v formulah 3-7 in 3-9.

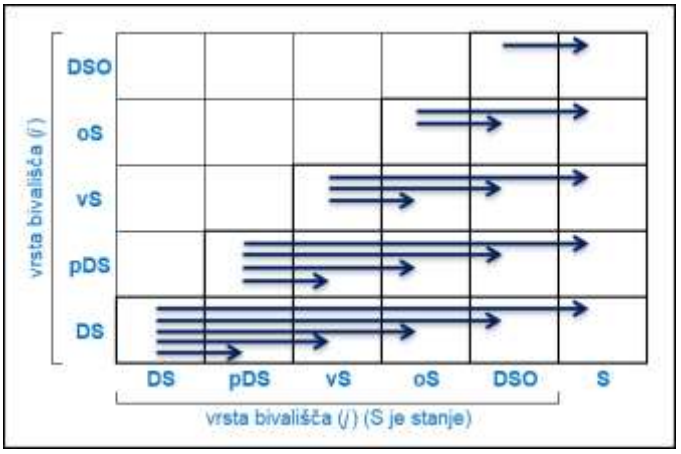
*Tabela 1: Pregled možnih selitev iz tipov bivališč (i) v tipe bivališč (j) zaradi upada funkcionalnih zmožnosti.*

| Št. izstopne točke | *i* | Opis *i* | Št. vstopne točke | *j* | Opis *j* |
|---|---|---|---|---|---|
| 0 | DS | Družinsko stanovanje | 1 | pDS | Prilagojeno družinsko stanovanje |
| | | | 2 | vS | Varovano stanovanje |
| | | | 3 | oS | Oskrbovano stanovanje |
| | | | 4 | DSO | Dom starejših občanov |
| | | | 5 | S | Smrt |
| 1 | pDS | Prilagojeno družinsko stanovanje | 2 | vS | Varovano stanovanje |
| | | | 3 | oS | Oskrbovano stanovanje |
| | | | 4 | DSO | Dom starejših občanov |
| | | | 5 | S | Smrt |
| 2 | vS | Varovano stanovanje | 3 | oS | Oskrbovano stanovanje |
| | | | 4 | DSO | Dom starejših občanov |
| | | | 5 | S | Smrt |
| 3 | oS | Oskrbovano stanovanje | 4 | DSO | Dom starejših občanov |
| | | | 5 | S | Smrt |
| 4 | DSO | Dom starejših občanov | 5 | S | Smrt |

*Legenda: i je izstopno bivališče, j je vstopno bivališče.*

*Vir: prirejeno po Bogataj et al., 2016b, str. 2.*

*Slika 2: Prikaz selitev starostnikov med različnimi tipi bivališč: iz lastnega doma do DSO v okviru modela mnogoterih pojemanj.*




*Legenda: DS – neprilagojeno družinsko stanovanje, pDS – prilagojeno družinsko stanovanje, vS – varovano stanovanje, oS – oskrbovano stanovanje, DSO – dom starejših občanov, S – smrt.*

*Vir: prirejeno po Bogataj et al., 2016b, str. 2–13.*

Ob predpostavki, da javni stanovanjski sklad ne vsebuje varovanih (vS) in oskrbovanih stanovanj (oS), ima matrika selitev naslednjo obliko:

$$
\square_{\square,\square} = \begin{bmatrix} \square_{\square}^{(0)} & \square_{\square}^{(0,1)} & 0 & 0 & \square_{\square}^{(0,4)} & \square_{\square}^{(0,5)} \\ 0 & \square_{\square}^{(1)} & 0 & 0 & \square_{\square}^{(1,4)} & \square_{\square}^{(1,5)} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \square_{\square}^{(4)} & \square_{\square}^{(4,5)} \end{bmatrix}_{\square} \qquad (0\text{-}6)
$$

Porazdelitev stanovalcev v različnih tipih bivališč, kjer javni najemni stanovanjski sklad ne vsebuje varovanih in oskrbovanih stanovanj, je zato naslednja:

$$
\square\square = \square\square == [\square^{(0)}\ \square^{(1)}\ 0\ 0\ \square^{(4)}] \begin{bmatrix} \square_{\square}^{(0)} & \square_{\square}^{(0,1)} & 0 & 0 & \square_{\square}^{(0,4)} & \square_{\square}^{(0,5)} \\ 0 & \square_{\square}^{(1)} & 0 & 0 & \square_{\square}^{(1,4)} & \square_{\square}^{(1,5)} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \square_{\square}^{(4)} & \square_{\square}^{(4,5)} \end{bmatrix}_{\square} = \qquad (0\text{-}7)
$$

$$
= [\square_{\square}^{(0)}\ \square_{\square}^{(1)}\ 0\ 0\ \square_{\square}^{(4)}]_{\square+1}
$$

Na podlagi demografske statistike, ki vključuje funkcionalne zmožnosti prebivalstva, so izračunane pričakovane potrebe starejših občanov. V modelu predpostavljamo, da javni stanovanjski sklad zagotavlja ustrezna stanovanja in da so v vseh občinah v državi prebivalcem dostopna varna specializirana stanovanja, prilagojena funkcionalnim zmožnostim stanovalcev.

Matrika selitev, kjer javni stanovanjski sklad zagotavlja varovana in oskrbovana stanovanja, ima zdaj naslednjo obliko:

$$
\square_{\square,\square} = \begin{bmatrix} \square_{\square}^{(0)} & \square_{\square}^{(0,1)} & \square_{\square}^{(0,2)} & \square_{\square}^{(0,3)} & \square_{\square}^{(0,4)} & \square_{\square}^{(0,5)} \\ 0 & \square_{\square}^{(1)} & \square_{\square}^{(1,2)} & \square_{\square}^{(1,3)} & \square_{\square}^{(1,4)} & \square_{\square}^{(1,5)} \\ 0 & 0 & \square^{(2)} & \square^{(2,3)} & \square^{(2,4)} & \square^{(2,5)} \\ 0 & 0 & 0 & \square_{\square}^{(3)} & \square_{\square}^{(3,4)} & \square_{\square}^{(3,5)} \\ 0 & 0 & 0 & 0 & \square_{\square}^{(4)} & \square_{\square}^{(4,5)} \end{bmatrix}_{\square} \qquad (0\text{-}8)
$$

Za uspešno napovedovanje različnih stanovanjskih potreb starejših in s tem optimalne strukture stanovanjskega sklada, ki temelji na zmanjševanju funkcionalnih zmožnosti prebivalstva in dejanskem povpraševanju, je treba poznati verjetnostno porazdelitev $T_i(x)$. Porazdelitev stanovalcev v različnih tipih bivališč, kjer javni najemni stanovanjski sklad vsebuje varovana in oskrbovana stanovanja:

$$
\square\square_2 = \square_{\square,\square}\square_{\square,\square} =
$$

$$
= [\square^{(0)}\ \square^{(1)}\ \square^{(2)}\ \square^{(3)}\ \square^{(4)}] \begin{bmatrix} \square_{\square}^{(0)} & \square_{\square}^{(0,1)} & \square_{\square}^{(0,2)} & \square_{\square}^{(0,3)} & \square_{\square}^{(0,4)} & \square_{\square}^{(0,5)} \\ 0 & \square_{\square}^{(1)} & \square_{\square}^{(1,2)} & \square_{\square}^{(1,3)} & \square_{\square}^{(1,4)} & \square_{\square}^{(1,5)} \\ 0 & 0 & \square^{(2)} & \square^{(2,3)} & \square^{(2,4)} & \square^{(2,5)} \\ 0 & 0 & 0 & \square_{\square}^{(3)} & \square_{\square}^{(3,4)} & \square_{\square}^{(3,5)} \\ 0 & 0 & 0 & 0 & & \end{bmatrix}_{\square} \qquad (0\text{-}9)
$$

[ □ □ □(4) □(4,5) ]□

= [ □(0) □(1) □(2) □(3) □(4) ]

□+1 □+1 □+1 □+1 □+1

Verjetnost $q_x(i,j)$ selitve iz bivališča tipa $i$ v bivališče tipa $j$ zaradi upadajočih funkcionalnih zmožnosti za stanovalca, starega $x$ let, je prikazana v naslednji formuli:

$$q^{(x,i)} = \frac{M_x^{(i,j)}}{S_x^{(i)}}; \qquad j = 1, 2, 3, 4, 5;\ j > i \tag{0-10}$$

pri čemer je $M_x(i,j)$ število stanovalcev, ki se selijo iz bivališča tipa $i$ v bivališče tipa $j$, in $S_x(i)$ skupno število stanovalcev, starih $x$ let na začetku leta, ki živijo v bivališču tipa $i$. Verjetnost, da stanovalec ostane v stanovanju, je $q_i^{(x)}$. Končna razporeditev prebivalcev po tipih bivališča za vsako kohorto ($x$ let staro) v letu $\tau$ je opisana z naslednjo matriko, kot prehod na osnovi Allignol et al. (2011, str. 1) in Sieber et al. (2012, str. 690). Za namen vzpostavitve modela vrednotenja družbene vrednosti, ustvarjene z vlaganji v oskrbovana stanovanja, je matrika prilagojena danemu grajenemu okolju:

$$Q_{x,\tau} = \begin{bmatrix} q_1^{(0)} & q_1^{(0,1)} & q_1^{(0,2)} & q_1^{(0,3)} & q_1^{(0,4)} & q_1^{(0,5)} \\ 0 & q_2^{(1)} & q_2^{(1,2)} & q_2^{(1,3)} & q_2^{(1,4)} & q_2^{(1,5)} \\ 0 & 0 & q_3^{(2)} & q_3^{(2,3)} & q_3^{(2,4)} & q_3^{(2,5)} \\ 0 & 0 & 0 & q_4^{(3)} & q_4^{(3,4)} & q_4^{(3,5)} \\ 0 & 0 & 0 & 0 & q_5^{(4)} & q_5^{(4,5)} \end{bmatrix} \tag{0-11}$$

Vektor $S_{x,\tau}$ predstavlja strukturo števila prebivalcev starostnega razreda $x$ (kohorta $x$), ki bivajo v različnih tipih bivališč na koncu leta $\tau$-1. $NM_x(i)$ predstavljajo neto migracije za posamezen tip bivališča. $ZS_x(i)$ je struktura v proučevanem geografskem območju na začetku leta, pred migracijami. Zato velja splošna formula:

$$S_{x,\tau} = [s_1^{(0)}\ s_2^{(1)}\ s_3^{(2)}\ s_4^{(3)}\ s_5^{(4)}]_\tau =$$

$$= [s_1 q_1^{(0)}\ s_2 q_2^{(1)}\ s_3 q_3^{(2)}\ s_4 q_4^{(3)}\ s_5 q_5^{(4)}]_\tau \tag{0-12}$$

$$+ [s_1 q_1^{(0)}\ s_2 q_2^{(1)}\ s_3 q_3^{(2)}\ s_4 q_4^{(3)}\ s_5 q_5^{(4)}]_\tau$$

Naslednja formula predstavlja razporeditev stanovalcev po tipu bivališča za proučevano kohorto v letu $\tau$+1 (pri starosti $x$+1 let), pri čemer je lahko $S$ podvržen tudi parametrom Lowryjevega gravitacijskega modela, kjer so vključene davčna politika in subvencije (Janež et al., 2016, str. 644):

$$S_{x,\tau+1} = S_{x,\tau} Q_{x,\tau} =$$

$$= [s_1^{(0)}\ s_2^{(1)}\ s_3^{(2)}\ s_4^{(3)}\ s_5^{(4)}] \begin{bmatrix} q_1^{(0)} & q_1^{(0,1)} & q_1^{(0,2)} & q_1^{(0,3)} & q_1^{(0,4)} & q_1^{(0,5)} \\ 0 & q_2^{(1)} & q_2^{(1,2)} & q_2^{(1,3)} & q_2^{(1,4)} & q_2^{(1,5)} \\ 0 & 0 & q_3^{(2)} & q_3^{(2,3)} & q_3^{(2,4)} & q_3^{(2,5)} \\ 0 & 0 & 0 & q_4^{(3)} & q_4^{(3,4)} & q_4^{(3,5)} \\ 0 & 0 & 0 & 0 & q_5^{(4)} & q_5^{(4,5)} \end{bmatrix}_\tau \tag{0-13}$$

$$= [s_1^{(0)}\ s_2^{(1)}\ s_3^{(2)}\ s_4^{(3)}\ s_5^{(4)}]$$

□+1 □+1 □+1 □+1 □+1 □+1

Izračun družbene vrednosti oskrbovanih stanovanj temelji na aktuarskem modelu in razlikah v aktuarski sedanji vrednosti. V modelu so uporabljene naslednje notacije:

| | |
|---|---|
| $\square\square\square_{\square}$ | aktuarska sedanja vrednost doživljenjskih izdatkov za storitve dolgotrajne oskrbe za osebe, stare *x* let |
| $_{\square}\square_{\square}$ | verjetnost, da bo oseba *x* let preživela *j* let |
| $\square_{\square}^{(\square)}$ | verjetnost, da je oseba *x* let stara v bivališču tipa *i* |
| $c_i$ | letni izdatki za storitve dolgotrajne oskrbe v bivališču tipa oskrbe *i* |
| *om* | obrestna mera (1,75 odstotka) |
| $\square = \frac{1}{1+\square}$ | diskontna stopnja |
| $SS_1$ | stanovanjski sklad brez varovanih stanovanj (vS; angl. *sheltered housing*, SH) in / ali oskrbovanih stanovanj (oS; angl. *housing with care*, HwC) |
| $SS_2$ | stanovanjski sklad z varovanimi stanovanji in/ali oskrbovanimi stanovanji |
| $DV_x$ | družbena vrednost (*DV*) je razlika v aktuarskih sedanjih vrednostih izdatkov za zdravstveno varstvo in dolgotrajno ooskrbo v odvisnosti od $SS_1$ in $SS_2$ |

Aktuarska sedanja vrednost za kritje izdatkov za storitve dolgotrajne oskrbe ($ASV_x$) za starostnika, odvisnega od pomoči drugih, je lahko zapisana na splošno:

$$\square\square\square = \sum_{\square=0}^{100-\square} \square \cdot \square^{\square} \cdot (\square^{\square\square\square\ \square} \cdot \square_{\square+\square\ 1} + \square^{\square\square\square\ \square\square} \cdot \square_{\square+\square\ 2} + \square^{\square\square\square\ \square\square\square} \cdot \square_{\square+\square\ 3}) \qquad (0\text{-}14)$$

Ker pa stanovanjski sklad, ki bi bil prilagojen funkcionalnim zmožnostim stanovalcev (upadlim funkcionalnim zmožnostim starejših kohort, $SS_2$), ni vedno na voljo, se za doživljenjske izdatke za dolgotrajno oskrbo za osebo, ki je stara 65 let, izračuna aktuarsko sedanjo vrednost.

Ob predpostavki, da obstajata samo dve strukturi stanovanjskega sklada ($SS_1$) in ($SS_2$):

$$\square\square\square_{65}(\square\square_1) = \sum_{\square=0}^{100-65} \square_{\square\ 65} \cdot \square^{\square} \cdot (\square^{\square\square\square\ \square}_{65+\square}(\square\square_1) \cdot \square_1 + \square^{\square\square\square\ \square\square}_{65+\square}(\square\square_1) \cdot \square_2 + \square^{\square\square\square\ \square\square\square}_{65+\square}(\square\square_1) \cdot \square_3) \qquad (0\text{-}15)$$

$$\square\square\square_{65}(\square\square_2) = \sum_{\square=100-65} \square_{\square\ 65} \cdot \square^{\square} \qquad (0\text{-}16)$$

$$\cdot\left(\square^{\square}_{65+\square}(\square\square_2)\cdot\overset{\square=0}{\square_1}+\square^{\square\square}_{65+\square}(\square\square_2)\cdot\square_2+\square^{\square\square\square}_{65+\square}(\square\square_2)\cdot\square_3\right)$$

V literaturi je v številnih primerih zapisano, da ni metode za ocenjevanje družbene vrednosti, ki jo ustvari vključitev varovanih in oskrbovanih stanovanj v (državni, regionalni, občinski) stanovanjski sklad socialnih stanovanj ($SS_2$) (Wood, 2017, str. 2 in 3). Zato tudi dokument »Adequate social protection for LTC needs in an ageing society« navaja, da ustreznega informacijskega sistema ni na voljo (EC, 2014, str. 24), iz tuje literature (Wood, 2017, str. 2 in 3) pa je mogoče povzeti le ocene. V študiji Wood (2017) je bilo ugotovljeno, da so izdatki za dolgotrajno oskrbo na letni ravni zelo odvisni od razpoložljivega stanovanjskega sklada, vendar se v praksi stanovanjski sklad in storitve zdravstvenega varstva ter dolgotrajne oskrbe obravnavajo in upravljajo ločeno. V vseh državah članicah EU sta ti dve področji celo ločeno regulirani. Posledično je bilo v okviru tega prispevka s teoretičnimi raziskavami in terenskim delom ugotovljeno, da je aktuarska sedanja vrednost izdatkov za zdravstveno varstvo in doživljenjsko dolgotrajno oskrbo odvisna od stanovanjskega sklada.

Družbena vrednost (*DV*), ki se ustvari z vključitvijo varovanih in oskrbovanih stanovanj v stanovanjski sklad, je ugotovljena kot razlika med aktuarsko sedanjo vrednostjo (*ASV*) izdatkov za zdravstveno varstvo in doživljenjsko dolgotrajno oskrbo v odvisnosti od strukture stanovanjskega sklada. Gre za razliko med aktuarsko sedanjo vrednostjo izdatkov za zdravstveno varstvo in doživljenjsko dolgotrajno oskrbo v stanovanjskem skladu brez specializiranih stanovanj za oskrbo starostnikov $SS_1$ in aktuarsko sedanjo vrednostjo izdatkov za zdravstveno varstvo in doživljenjsko dolgotrajno oskrba v stanovanjskem skladu, ki vključuje specializirana stanovanja za oskrbo starostnikov $SS_2$:

$$\square\square_{65} = \square\square\square_{65}(\square\square_1) - \square\square\square_{65}(\square\square_2) \qquad (0\text{-}17)$$

$DV_{65}$ je razlika med *ASV* v prvotnem stanovanjskem skladu ($SS_1$) in v prilagojenem stanovanjskem skladu ($SS_2$), ki vključuje specializirane stanovanjske rešitve za stanovanjsko oskrbo starostnikov z upadajočimi funkcionalnimi zmožnostmi.

Model obravnava le dve strukturi stanovanjskega sklada, ki vključujeta različno strukturo razpoložljivih tipov bivališč, ki v mnogih evropskih državah trenutno še niso na voljo. V nadaljnjih raziskavah je treba podrobno umeriti tako skupino stanovanjskega sklada $SS_1$ kot skupino stanovanjskega sklada $SS_2$, ki vključuje specializirane stanovanjske rešitve za oskrbo starostnikov. Nenehno spremljanje in proučevanje sestave stanovanjskega sklada lahko pomembno vplivata na izdatke za zdravstveno varstvo, doživljenjsko dolgotrajno oskrbo in stanovanjsko oskrbo starejših, pripomoreta pa tudi usmeriti investicije v ustrezno strukturo stanovanjskega sklada. Prav zato je treba trajno meriti družbene vrednosti v posameznih vrstah in sestavah stanovanjskega sklada, pri čemer pa se sama metodologija ne spreminja, večja je le dimenzija matrik selitev in vektorjev stanj.

## Numerični primer

V nadaljevanju je predstavljen numerični primer.

*Tabela 2: Število upravičencev do pomoči na domu v Sloveniji med 1998 in 2017.*

| Leto | Št. upravičencev do pomoči na domu |
|---|---|
| 1998 | 3.909 |

| | |
|---|---|
| 2002 | 4.590 |
| 2004 | 4.732 |
| 2006 (celo leto)* | 5.328 |
| 2007 (januar– junij)* | 5.595 |
| 2008 (januar– junij)* | 5.780 |
| 1. 12. 2009 | 6.502 |
| 1. 12. 2010 | 6.575 |
| 31. 12. 2011 | 6.624 |
| 31. 12. 2014 | 6.888 |
| 31. 12. 2015 | 7.100 |
| 31. 12. 2016 | 7.374 |
| 31. 12. 2017 | 7.731 |

*Opomba: *Povprečno število uporabnikov na mesec*
*Vir: prirejeno po IRSSV, 2018.*

Verjetnost, da bo starejša oseba v določeni kategoriji oskrbe v DSO, smo izračunali glede na število uporabnikov oskrbe na domu v Sloveniji do 31. decembra 2015 (Tabela 3) in število uporabnikov ter prosilcev za dolgotrajno oskrbo v Sloveniji, starih od 65 do 100 let (Tabela 4).

*Tabela 3: Število uporabnikov in čakajočih starostnikov storitev DSO v Sloveniji (65+).*

| **Spol** | **Število starostnikov v Sloveniji** | **Število upravičencev do pomoči na domu** | **Število prošenj za DSO** | **Število uporabnikov DSO storitev** | **Število prebivalcev** |
|---|---|---|---|---|---|
| | | **31. 12. 2015** | **12. 9. 2017** | **31. 12. 2016** | **2016** |
| M | 151.255 | 1.781 | 1.609 | 4.460 | 157.527 |
| Ž | 203.933 | 5.319 | 4.808 | 13.323 | 222.575 |
| **Skupaj** | **355.188** | **7.100** | **6.417** | **17.783** | **380.102** |
| | 93,4 % | 1,9 % | 1,7 % | 4,7 % | 100,0 % |

*Vir: Število upravičencev do pomoči na domu (IRSSV, 2016), število prošenj za DSO (SSZS, 2016, e-vir), število uporabnikov DSO storitev (ZZZS, 2016, interno gradivo), število prebivalcev v Sloveniji (SURS, 2016, e-vir).*

*Tabela 4: Verjetnost, da bo starejša oseba v določeni kategoriji oskrbe v DSO in verjetnost, da bo starejša oseba odvisna od pomoči drugih in bo potrebovala oskrbo v določeni kategoriji, kar vpliva na stroške oskrbe - $SS_1$.*

| **M** | **Starostniki** | **Dom starejših občanov (DSO)** | | |
|---|---|---|---|---|
| | | **Kategorija I** | **Kategorija II** | **Kategorija III** |
| **x** | | [illegible] | [illegible] | [illegible] |
| 65 | 0,9935 | 0,0013 | 0,0005 | 0,0046 |
| 75 | 0,9786 | 0,0052 | 0,0012 | 0,0149 |
| 85 | 0,9202 | 0,0178 | 0,0043 | 0,0577 |
| 95 | 0,7584 | 0,0604 | 0,0067 | 0,1745 |

| **Ž** | **Starostniki** | **Dom starejših občanov (DSO)** | | |
|---|---|---|---|---|
| | | **Kategorija I** | **Kategorija II** | **Kategorija III** |
| 65 | 0,9946 | 0,0008 | 0,0003 | 0,0043 |
| 75 | 0,9747 | 0,0045 | 0,0017 | 0,0191 |
| 85 | 0,8640 | 0,0291 | 0,0092 | 0,0976 |
| 95 | 0,5442 | 0,0994 | 0,0268 | 0,3297 |

*Vir: izračun na osnovi ZZZS podatkov (ZZZS, 2016, interno gradivo).*

Tabela 4 predstavlja matriko verjetnosti stanja, kjer imajo starostniki, ki so odvisni od pomoči drugih, samo možnost nastanitve v DSO, drugih stanovanjskih možnosti pa nimajo.

Tabela 5 predstavlja državno matriko verjetnosti stanj, pri kateri imajo starejši odrasli, odvisni od pomoči drugih, tudi možnost, da se preselijo v varovana stanovanja (vS) ali oskrbovana stanovanja (oS). Starejši odrasli, odvisni od pomoči drugih, bodo svojo novo možnost izbrali optimalno, v odvisnosti od njihovih upadlih funkcionalnih zmožnosti.

Tabela 5: Verjetnost, da bo starejša oseba odvisna od pomoči drugih v določenem tipu bivališča, ki zagotavlja ustrezen obseg storitev zdravstvene nege in dolgotrajne oskrbe, kar vpliva na izdatke za oskrbo – $SS_2$.

| M | Starostniki | Stanovanjski sklad | | |
|---|---|---|---|---|
| | | I | II | III |
| X | | □□ | □□□ | □□□□ |
| 65 | 0,9935 | 0,0025 | 0,0017 | 0,0023 |
| 75 | 0,9786 | 0,0090 | 0,0050 | 0,0074 |
| 85 | 0,9202 | 0,0323 | 0,0187 | 0,0289 |
| 95 | 0,7584 | 0,1040 | 0,0503 | 0,0872 |

| Ž | Starostniki | Stanovanjski sklad | | |
|---|---|---|---|---|
| | | I | II | III |
| 65 | 0,9946 | 0,0019 | 0,0014 | 0,0022 |
| 75 | 0,9747 | 0,0093 | 0,0065 | 0,0095 |
| 85 | 0,8640 | 0,0536 | 0,0336 | 0,0488 |
| 95 | 0,5442 | 0,1818 | 0,1092 | 0,1648 |

Vir: izračun na osnovi ZZZS podatkov (ZZZS, 2016, interno gradivo).

Državna matrika verjetnosti stanj je bila razvita na podlagi terenskega dela, ki ga podrobneje opisujeta Kavšek in Bogataj (2016a, str. 1–12). V modelu je predpostavljeno, da oseba, ki je odvisna od pomoči drugih, potrebuje intenzivnost oskrbe v znesku, kot je prikazano v Tabeli 6.

Tabela 6: Letni izdatki za dolgotrajno oskrbo - temeljijo na intenzivnosti in izdatkih za zdravstveno varstvo in dolgotrajno oskrbo.

| Kategorija | Znesek v EUR | | |
|---|---|---|---|
| | na dan | na mesec | na leto |
| I | 27,12 | 814 | 9.763 |
| II | 35,68 | 1.070 | 12.844 |
| III | 49,45 | 1.483 | 17.802 |

Vir: izračun na osnovi ZZZS podatkov (ZZZS, 2016, interno gradivo).

Aktuarska sedanja vrednost (*ASV*) za doživljenjsko zavarovanje za vse življenje za žensko, ki je stara 65 let (v EUR), je:

$\square\square\square_{65}(\square\square_{1}) =$

$$= \sum_{\square=0}^{100-65} \square_{\square 65} \cdot \square^{\square} \cdot (\square^{\square\square\square}_{65+\square}(\square\square_1) \cdot \square_1 + \square^{\square\square\square}_{65+\square}(\square\square_1) \cdot \square_2 + \square^{\square\square\square\ \square\square\square}_{65+\square}(\square\square_1) \cdot \square_3) =$$

$$= \sum_{\square=0}^{100-65} \square_{\square 65} \cdot \square^{\square} \cdot (\square^{\square\square\square\ \square}_{65+\square} \cdot 9.753 + \square^{\square\square\square\ \square\square}_{65+\square} \cdot 12.844 + \square^{\square\square\square\ \square\square\square}_{65+\square} \cdot 17.802) = 15.133\ \text{EUR}$$

V primeru, da obstaja več možnosti izbire starostnikom prilagojenega bivališča, možnosti selitve v varovana in oskrbovana stanovanja, kot je opisano zgoraj, pa:

$$\square\square\square_{65}(\square\square_2) =$$

$$= \sum_{\square=0}^{100-65} \square_{\square 65} \cdot \square^{\square} \cdot (\square^{\square}_{65+\square}(\square\square_2) \cdot \square_1 + \square^{\square\square}_{65+\square}(\square\square_2) \cdot \square_2 + \square^{\square\square\square}_{65+\square}(\square\square_2) \cdot \square_3) =$$

$$= \sum_{\square=0}^{100-65} \square_{\square 65} \cdot \square^{\square} \cdot (\square^{\square}_{65+\square} \cdot 9.753 + \square^{\square\square}_{65+\square} \cdot 12.844 + \square^{\square\square\square}_{65+\square} \cdot 17.802) = 12.830\ \text{EUR}$$

Vprašanje je, kako oblikovati strukturo javnega stanovanjskega sklada oziroma sistem stanovanjskih subvencij, da doseže aktuarska sedanja vrednost zdravstvenega varstva in doživljenjske dolgotrajne oskrbe starostnikov $ASV_{65}(SS_2)$ minimum.

V literaturi je v mnogih primerih zapisano, da ni metode za vrednotenje družbene vrednosti (*DV*) gradnje stanovanjskega sklada varovanih stanovanj (vS) in oskrbovanih stanovanj (oS). V tem prispevku je ugotovljeno, da predstavlja družbena vrednost (*DV*) varovanih stanovanj in oskrbovanih stanovanj razliko med aktuarsko sedanjo vrednostjo izdatkov za zdravstveno varstvo in dolgoročno oskrbo v primeru stanovanjskega sklada brez vS in oS ter stanovanjskega sklada s vS in oS, ločeno za moško in žensko populacijo v Sloveniji in znaša (EUR):

$$\square\square_{65,Ž} = \square\square\square_{65,Ž} \cdot (\square\square_1) - \square\square\square_{65,Ž} \cdot (\square\square_2) = 15.133{,}20 - 12.830{,}45 = 2.282{,}75$$

$$\square\square_{65,\square} = \square\square\square_{65,M} \cdot (\square\square_1) - \square\square\square_{65,M} \cdot (\square\square_2) = 6.504{,}80 - 5.564{,}93 = 939{,}87$$

Ker so tablice umrljivosti za moške in ženske (AZN, 2016) razlikujejo in je delež starejših moških bistveno manjši od deleža žensk, so tudi ocene družbene vrednosti precej različne. Oskrbovana stanovanja bi veliko več prispevala k družbeni vrednosti za populacijo žensk kot za populacijo moških.

Družbena vrednost predstavlja razliko med aktuarsko sedanjo vrednostjo v

prvotnem stanju stanovanjskega sklada in primerom bolj prilagodljivega stanovanjskega sklada s specializiranimi stanovanjskimi rešitvami za starostnike z zmanjšanimi funkcionalnimi zmožnostmi. Družbena vrednost izhaja iz predpostavke, da starostniki po preselitvi živijo tako kratek čas v povprečju, kot je

to podatek za Slovenijo danes, zato tudi tako nizke številke. S simulacijo modela pa tudi lahko ugotavljamo, kako se to odrazi v primeru podaljšanja življenja in podaljšanja samostojnega (podobno kot zdravega) življenja.

## Zaključek

Aktuarska sedanja vrednost izdatkov za zdravstveno varstvo, ki so vezani neposredno na selitev v DSO in izdatkov za doživljenjsko dolgotrajno oskrbo starostnikov, je nižja, če imajo starostniki možnost selitve v oskrbovana stanovanja, ko jim funkcionalne zmožnosti upadejo do te mere, da ne morejo več varno živeti v svojem družinskem domu.

Na podlagi aktuarskega izračuna in iz primerjave med aktuarsko sedanjo vrednostjo ($ASV_{65}(SS_2)$) izdatkov za zdravstveno varstvo in doživljenjsko dolgotrajno oskrbo za starostnike, ki imajo možnost selitve v oskrbovana stanovanja, ko jim funkcionalne zmožnosti upadejo do te mere, da ne morejo več varno živeti v svojem družinskem domu, in med aktuarsko sedanjo vrednostjo ($ASV_{65}(SS_1)$) izdatkov za zdravstveno varstvo, ko te možnosti nimajo, smo ugotovili družbeno vrednost oskrbovanih stanovanj.

Družbena vrednost nastaja z zmanjševanjem izdatkov zdravstvene blagajne, ker ima ta nižje stroške zdravljenja zaradi nižje incidence padcev. Zato je smiselno, da se ta sredstva iz kurative preusmerijo v sklad za preventivo, to je za dvig kakovosti grajenega prostora za starostnike, v tej razliki, delno ali v celoti, konkretno za gradnjo oskrbovanih stanovanj. Na podoben način je mogoče vrednotiti tudi družbeno vrednost vlaganj v prilagoditev družinskih stanovanj in javnih površin, kjer bi država lahko subvencionirala obnovo in prilagajanje domov potrebam starostnikov. Vendar pa je pri tem treba upoštevati ne samo investicijskih stroškov, temveč tudi stroške zdravstvene in socialne oskrbe, ki so zaradi razpršenosti prebivalcev v prostoru znatni in lahko krepko presežejo samo izvajanje storitev na domu starostnika. Vsi ti stroški pa vplivajo na aktuarsko sedanjo vrednost oskrbe. Tako je v nabor celotnih izdatkov za stanovanjsko, zdravstveno in socialno oskrbo treba nujno prišteti tudi prostorski faktor.

Optimalna politika zahteva višjo dinamiko gradnje namensko zgrajenih stanovanjskih objektov brez ovir za starostnike. Model aktuarske sedanje vrednosti za dolgotrajno oskrbo je razvit in vgrajen v model, ki opisuje ustvarjanje družbene vrednosti z ustreznimi naložbami v stanovanjski sklad in upravljanjem poljubnega števila različnih vrst stanovanjskih rešitev, ki podpirajo tudi cenejšo dolgotrajno oskrbo.

Te ugotovitve so lahko bistvena spodbuda lokalnim oblastem, da:

- aktivneje načrtujejo vlaganja v razvoj ustreznega stanovanjskega sklada, primernega za bivanje starostnikov z zmanjšanimi funkcionalnimi zmožnostmi ali
- ustvarijo pogoje za privabljanje zasebnih naložb v primerna in cenovno dostopna stanovanja za starostnike. Z zagotavljanjem cenovno dostopnih

stanovanj, primernih za funkcionalne zmožnosti starejših, bi vplivali tudi na zmanjšanje izdatkov za zdravstveno varstvo, ki so tukaj priznani kot družbena vrednost zmanjšanih zdravstvenih stroškov zaradi ustreznejše strukture stanovanjskega sklada.

Predlagani model in ustrezni statistični podatki o zmanjšanih izdatkih za zdravstvo in dolgotrajno oskrbo lahko služijo kot osnova za ocenjevanje tveganj. Demografske projekcije, ki temeljijo na oceni tveganj, so namreč potrebne za pridobitev posojil pri SSRS in Evropski investicijski banki po nizkih obrestnih merah, ki so nižje od tržnih obrestnih mer. S tem bi se tudi za starejše v Sloveniji zagotavilo dostopnost cenovno sprejemljivega, varnega stanovanjskega sklada.

Navedba financerja:

Projekt »Razvoj socialne infrastrukture in storitev za izvajanje dolgotrajne oskrbe v skupnosti« (evidenčna številka: J6-9396) je sofinancirala Javna agencija za raziskovalno dejavnost Republike Slovenije iz državnega proračuna.

## Viri

Allignol, A., Schumacher, M., Beyersmann, J. (2011). Empirical Transition Matrix of Multi-State Models: The etm Package. Journal of Statistical Software, let. 38, št. 4, str. 1–15.

AZN. (2016). Nemške rentne tablice smrtnosti DAV 1994R. Ljubljana: Agencija za zavarovalni nadzor (AZN). URL: https://www.a-zn.si/wp-content/uploads/azn00148.pdf, 23. 4. 2016.

Bogataj, D., Aver, B., Bogataj, M. (2016a). Supply chain risk at simultaneous robust perturbations. International Journal of Production Economics, let. 181, del A, str. 68–78.

Bogataj, D., Ros-McDonnell, D., Bogataj, M. (2016b). Management, financing and taxation of housing stock in the shrinking cities of aging societies. International Journal of Production Economics, let. 181, št. pt. A, str. 2–13.

Demirkan, H., Olguntuerk. N. (2014). A priority-based 'design for all' approach to guide home designers for independent living. Architectural Science Review, let. 57, št. 2, str. 90–104.

Deshmukh, S. (2012). Multiple decrement models in insurance, An introduction using R. Heidelberg: Springer.

EC. (2014). Adequate social protection for long-term-care needs in an ageing society. Brussels: European Commision (EC).

Gerber, H. U. (1997). Life Insurance Mathematics, 3rd Edition. Berlin: Swiss Association of Actuaries Zürich in Springer.

IRSSV. (2016). Analiza izvajanja pomoči na domu za leto 2015. Ljubljana: Inštitut RS za socialno varstvo (IRSSV).

IRSSV. (2018). Analiza izvajanja pomoči na domu za leto 2017. Ljubljana: Inštitut RS za socialno varstvo (IRSSV).

Janež, P., Bogataj, M., Drobne, S. (2016). Impact of the real estate taxation and municipal revenue on dynamics of internal migration : case study for city Municipal of Ljubljana. Geodetski vestnik, let. 60, št. 4, str. 644–684.

Kavšek, M. (2019). Model ekonomskega vrednotenja življenjskega sloga in prostorsko oskrbnih potreb starostnikov (doktorska disertacija). Novo mesto: Fakulteta za organizacijske študije.

Kavšek, M., Bogataj, D. (2016a). Ageing in place driving urban transformations. Revija za univerzalno odličnost, let. 5, št. 1, str. 1–12.

OECD, Eurostat, WHO. (2006). Guidelines for estimating long-term care expenditures in the Joint 2006 SHA Data Questioanaire, Explanatory Notes. Pariz: OECD Publishing, Eurostat, World Health Organization (WHO).

OECD. (2011). Compendium of OECD well-being indicators. Pariz: OECD Publishing.

OECD. (2013a). Health at a glance 2013. OECD Indicators. Pariz: OECD Publishing.

OECD. (2013b). A Good Life in Old Age? Monitoring and Improving Quality in Long-term Care, OECD Health Policy Studies. Pariz: OECD Publishing.

OECD. (2015). Ensuring Quality of long-term care for older people. Pariz: OECD Publishing.

Siebert, U., Alagoz, O., Bayoumi, A. M., et al. (2012). State-Transition Modeling: A Report of the ISPOR-SMDM Modeling Good Research Practices Task Force-3. Medical Decision Making, let. 32, št. 5, SI, str. 690–700.

SSZS. (2016a). Poudarki iz analiz področja institucionalnega varstva starejših in posebnih skupin odraslih za leto 2015. Ljubljana: Skupnost socialnih zavodov Slovenije (SSZS).

SSZS. (2016b). Pregled prošenj in prostih mest v domovih za starejše in posebnih socialno varstvenih zavodih na dan 24. 4. 2016. Ljubljana: Skupnost socialnih zavodov Slovenije (SSZS). URL: https://servis.ssz-slo.si/porocilo.pdf, 25. 4. 2016.

SSZS. (2019a). Pokritost potreb, domsko varstvo starejših na dan 30. 5. 2019. Ljubljana: Skupnost socialnih zavodov Slovenije (SSZS).

SSZS. (2019b). Pregled prošenj in prostih mest v domovih za starejše in posebnih socialno varstvenih zavodih na dan 24. 4. 2019. Ljubljana: Skupnost socialnih zavodov Slovenije (SSZS). URL: https://servis.ssz-slo.si/porocilo.pdf, 25. 4. 2019.

SURS. (2016). Celotni izdatki za dolgotrajno oskrbo v letu 2014. Ljubljana: SI-STAT. URL: https://www.stat.si/StatWeb/News/Index/6306, 28. 8. 2019.

SURS. (2017). Celotni izdatki za dolgotrajno oskrbo v letu 2015. Ljubljana: SI-STAT. URL: https://www.stat.si/StatWeb/News/Index/7116, 28. 8. 2019.

Williams, B. C., Fries, B. E., Foley, W. J., et al. (1994). Activities of Daily Living and Costs in Nursing Homes. Health Care Financing Review, let. 15, št. 4, str. 117–135.

Wood, C. (2017). Social Value of Sheltered Housing. London: Demos.

ZZZS. (2016a). Splošni dogovor za pogodbeno delo za leto 2016. Ljubljana: Zavod za zdravstveno zavarovanje Slovenije (ZZZS).

ZZZS. (2016b). Podatki o številu upravičencev do zdravstvene nege in zneskih v EUR v Sloveniji po spolu, starostnih razredih in kategoriji zdravstvene nege za obdobje od 2013 do 2016. Ljubljana: Zavod za zdravstveno zavarovanje Slovenije (ZZZS).

ZZZS. (2019a). Splošni dogovor za pogodbeno delo za leto 2019. Ljubljana: Zavod za zdravstveno zavarovanje Slovenije (ZZZS).

# Planning the social infrastructure for sustainable development of long-term care in Slovenian urban municipalities

**Benjamin Penič**

University of Ljubljana, Faculty of Social Work
benjamin.penic@fsd.uni-lj.si

**Jana Mali**

University of Ljubljana, School of Economics and Business
jana.mali@fsd.uni-lj.si

**Eneja Drobež**

Institute INRISK & Constitutional Court RS
enejab@yahoo.com

**David Bogataj**

University of Ljubljana, School of Economics and Business
Institute INRISK
dbogataj@actuary.si

## Abstract

The vision of the deinstitutionalisation of care for older adults requires development of community-based long-term care (LTC), an adequate infrastructure, and services in an age-friendly community. Barrier-free public spaces and specialized housing units for the provision of the integrated LTC services are essential for the development of lifetime neighbourhoods. In this paper we discuss the needed activities of Slovenian municipalities for development of the infrastructure for integrated LTC services and plans for the social infrastructure development, at the rapidly growing demand. We can conclude that Slovenian urban municipalities are aware that they still play an important role in the existing system of the LTC but have not yet decided on appropriate forms of community care. In the most common plans in municipalities are the further development of homecare, the adaptation of housing units to the abilities of older adults and are planning to continue of home care funding and development of the day care facilities for local persons who need help of others. A new law is also expected, which will outline greater activity of municipalities in this area with the introduction of type A homes in Slovenia. However, the constitutional provisions on the right to a home when it comes to senior citizens also need to be reconsidered.

Keywords: gerontology, social infrastructure, lifetime neighbourhoods, housing, ageing, social value

# Trajnostni razvoj socialne infrastrukture za dolgotrajno oskrbo v slovenskih urbanih območjih


## Povzetek

Vizija deinstitucionalizacije oskrbe oseb odvisnih od tuje pomoči zahteva razvoj socialne infrastrukture in storitev integrirane dolgotrajne oskrbe v starosti prijazni skupnosti. Javni prostori brez ovir in specializirane stanovanjske enote, ki omogočajo bivanje oseb z zmanjšanimi funkcionalnimi zmožnostmi in izvajanje storitev integrirane dolgotrajne oskrbe v skupnosti so bistvenega pomena za razvoj vseživljenjskih sosesk. V prispevku obravnavamo potrebne aktivnosti slovenskih mestnih občin za razvoj socialne infrastrukture ki omogoča izvajanje storitev integrirane dolgotrajne oskrbe v skupnosti. Mestne občine potrebujejo ustrezne geo-gerontološke projekcije za izdelavo dolgoročnih načrtov razvoja socialne infrastrukture ob hitro naraščajočem povpraševanju. Sklepamo lahko, da se slovenske mestne občine zavedajo, da imajo še vedno pomembno vlogo v obstoječem sistemu dolgotrajne oskrbe, vendar se še niso odločile za razvoj ustreznih oblik socialne infrastrukture, ki bi omogočala izvajanje integrirane dolgotrajne oskrbe v skupnosti. V najpogostejših načrtih v mestnih občinah so prisotne tendence nadaljnjega razvoj oskrbe na domu, prilagajanje stanovanjskih enot zmožnostim starejših odraslih, načrtujejo pa tudi nadaljevanje financiranja oskrbe na domu in razvoj dnevnega varstva za lokalne prebivalce, ki potrebujejo pomoč drugih. V večjem pričakovanju pa je tudi novi zakon, ki bo z uvedbo bivalnih domov tipa A začrtal večjo vlogo občin na tem področju v Sloveniji. Bolj pa je treba premisliti tudi ustavne določbe o pravici do doma, ko gre za starejše občane.



Ključne besede: gerontologija, socialna infrastruktura, vseživljenjske soseske, stanovanja, staranje, družbena vrednost


## Uvod

Deinstitucionalizacija starejših odraslih iz domov starejših (DSO) zahteva nove lokalne politike. Znano je, da lahko socialne inovacije, ki temeljijo na digitalni preobrazbi in dekoncentraciji sistemov socialnega in zdravstvenega varstva, podprejo šibko starejše prebivalstvo pri samostojnem in neodvisnem življenju v lastni skupnosti, s čimer lahko zelo daleč v prihodnost odložijo ali celo preprečijo institucionalizacijo v DSO. V zvezi s tem je pravica do ustreznega stanovanja in zatočišča, ki je varno in prilagojeno funkcionalnim zmožnostim starajočih se kohort, izrednega pomena. Pravica do stanovanja je kot človekova pravica priznana v več mednarodnih paktih in nekaterih nacionalnih ustavah. V tem prispevku obravnavamo razvoj in financiranje specializiranega stanovanjskega fonda za starejše odrasle v slovenskih mestnih občinah in razloge za to.

Že iz EUROPOP-a Evropske komisije (EK, 2015) sledi, da stanovanjski sklad v Evropi danes ni primeren za prehod iz institucionalne oskrbe na oskrbo na domu, ker je v mnogih evropskih državah preko 70% stanovanjskega fonda zgrajenega

neprimerno za stare, z mnogimi grajenimi ovirami, ki pomenijo zanje večjo nevarnost padcev in drugih poškodb. Čeprav iz evropskih dokumentov (EK, 2007) sledi, da si 90% prebivalstva želi starati v lastnem domu vse do smrti, ka pod pojmom »lastni dom« ne razumejo ti vedno dom, v katerem so živeli s svojo družino v času delovno-aktivnega življenja, ampak dom, v katerem imajo vso zaščito stanovanjske pravice (Kavšek, 2019; Kavšek in Bogataj, 2016, 2017). V veliki Britaniji je nacionalna zdravstvena služba ocenila, da so stroški zdravstvenega varstva starejših, ki živijo v varovanih stanovanjih, za 50 % nižji v primerjavi s stroški starejših, ki živijo v običajnih stanovanjih in soseskah (Wood, 2017), kar velja razumeti kot družbeno vrednost zaradi zmanjševanja zdravstvenih stroškov. Pomenu ustreznega bivališča pa dajejo večjo težo tudi Evropska socialna listina (ESC), Evropska konvencija o človekovih pravicah (EKČP) in večina nacionalnih ustav. V zvezi s tem je treba posebno pozornost nameniti osebam z znatno zmanjšano funkcionalno zmogljivostjo, ki so zato odvisne od pomoči drugih, tudi v okviru pravice do ustreznega stanovanja. FEANTSA proti Sloveniji (2007). V Evropski steber socialnih pravic sodi tudi zagotovitev dostopa do socialnih stanovanj ali kakovostne stanovanjske pomoči. Pravica do ustreznega stanovanja in zatočišča, prilagojenega tudi starajočim se skupinam, je ekonomska, socialna in kulturna pravica. Kot človekova pravica je priznana tudi v nekaterih nacionalnih ustavah članic EU in Splošni deklaraciji. Zato v tem prispevku obravnavamo razvoj in financiranje stanovanj kot dela socialne infrastrukture skupnosti za starejše odrasle z upadajočimi funkcionalnimi sposobnostmi tudi z vidika človekovih pravic. Socialne inovacije, ki temeljijo na digitalni preobrazbi sistemov socialnega in zdravstvenega varstva, lahko starejšim pomagajo pri samostojnem in neodvisnem življenju v lastni skupnosti ter odložijo ali celo preprečijo vstop v dom za starejše. Pri tem pa morajo tovrstni programi upoštevati tudi proračunske vire lokalnih skupnosti v kombinaciji z viri iz nacionalnih zdravstvenih skladov, kamor se lahko
»stekajo« tudi prihrankov v te sisteme, kar omogoča oceno družbene vrednosti naložb v grajeni prostor, ki je prijazen do starejšega prebivalstva. Zato v tem prispevku predstavljamo tudi primer slovenskih ustavnih zahtev in potencialnih omejitev finančnih tokov.

## Pravica do stanovanja kot človekova pravica

Pravica do stanovanja je bila prvič omenjena v členu 25(1) Splošne deklaracije Združenih narodov o človekovih pravicah (1948). Še posebej je pomemben člen 11(2) Mednarodnega pakta Združenih narodov o ekonomskih, socialnih in kulturnih pravicah (1966). Pravico do stanovanja nedvoumno določata portugalska in španska ustava, navajajo pa jo tudi izvenevropske države, kot so Urugvaj, Mehika, Pakistan in druge (Audefroy, 1994). Člen 78 Ustave Republike Slovenije (1991) zavezuje državo k ustvarjanju možnosti, da si državljani lahko pridobijo primerno stanovanje. Vendar pa kot uvrščena v sklop socialnih pravic, ki ne določajo minimalnih standardov, takšna ustavna določila dovoljujejo dvoumnost, ki vplivata na njihovo učinkovitost (Kenna, 2012). To je potrdila tudi raziskava v 64 državah, ki sta jo opravila Ben-Bassat in Dahan (2008) in je pokazala, da so stanovanjske pravice - v primerjavi z drugimi socialnimi pravicami, kot je pravica do izobraževanja - manj pogoste in imajo relativno nizko stopnjo ustavne zavezanosti. Pri zagotavljanju pravice do stanovanja je treba upoštevati tudi 31. člen Evropske socialne listine (1996), ki določa, da se države pogodbenice za zagotovitev

učinkovitega uresničevanja pravice do stanovanja zavežejo, da bodo sprejele ukrepe, namenjene spodbujanju dostop do stanovanja ustreznega standarda, preprečevanju, zmanjševati in postopnemu odpravljanju brezdomstva in oblikovanju dostopne stanarine tistim, ki nimajo zadostnih sredstev za to. Po navedbah Združenih narodov (2014) tako pravica do primernega stanovanja od države ne zahteva, da zgradi stanovanja za vse prebivalce, ampak zajema ukrepe, ki so potrebni za preprečevanje brezdomstva predvsem pa zagotavljanje varnosti lastništva in primernega stanovanja za vse. Država je tako dolžna uporabiti vsa razpoložljiva sredstva in varovanje pravice do primernega stanovanja. Člen 31 Evropske socialne listine (1996) pa so od držav pogodbenic kot zavezujočega sprejele le Andora, Finska, Francija, Italija, Litva, Nizozemska, Portugalska, Slovenija in Ukrajina. Evropski odbor za socialne pravice (2007) je že ugotovil, da Slovenija ni zagotovila učinkovite pravice do stanovanja svojim prebivalcem, ki niso imeli možnosti odkupa stanovanj, v katerih so prebivali kot imetniki stanovanjske pravice po denacionalizaciji družbene lastnine, potem ko je bil ta sistem ukinjen in so stanovanja postala last javnih subjektov.

Obveznost držav, ki izhaja iz 31. člena Evropske socialne listine (1996), je razvidna tudi iz odločitve Evropskega odbora za socialne pravice (2008) v zadevi FEANTSA proti Franciji, Odbor je ugotovil, da je Francija kršila člen 31 Evropske socialne listine (1996), ker ni zagotovila ukrepov za preprečevanje prisilnih izselitev, zmanjšanje brezdomstva in zagotavljanje cenovno dostopnih stanovanj za osebe z nizkimi dohodki. Opozoril je, da morajo biti pravice, priznane s podpisom Evropske socialne listine (1996), praktične in učinkovite, ne pa zgolj teoretične.

Evropsko sodišče za človekove pravice (ESČP) je v zadevah Chapman proti Združenemu kraljestvu (2001) ter Yordanova in drugi proti Bolgariji (2012) poudarilo poseben pomen zagotavljanja doma ranljivim skupinam. Peroni in Timmer (2013) trdita, da ima pojem ranljive skupine, ki ga uporablja ESČP, tri značilnosti: je relacijski, poseben in temelji na škodi. "Relacijski" pomeni, da se nanaša na ranljivost subjekta, "poseben" pomeni, da je ranljivi subjekt Sodišča član skupine, katerega ranljivost oblikujejo posebne izkušnje te skupine, katere član je utrpel škodo. Ranljivost starejših oseb pa je poudaril že Evropski odbor za socialne pravice v zadevi FEANTSA proti Sloveniji (2007, str. 18). Menimo, da lahko starejše ljudi obravnavamo kot ranljivo skupino, saj se lahko na jesen svojega življenja znajdejo v težkem finančnem položaju zaradi zmanjšanja dohodka, ki so ga prejemali v času delovne dobe, ter so lahko predmet predsodkov in stigmatizacije. To postaja še posebej problematično, ko eden od zakoncev ostane sam.

## Stanovanja za starejše v svetovni literaturi

Zgodovino razvoj namenskega specializiranega stanovanjskega fonda za potrebe starejših prebivalcev podajajo Mayhew in soavtorji (2017). Tovrstna bivališča in skupine bivališč pogosto nosijo skupno ime »retirement housing« - RH, vendar se imena po svetu močno razlikujejo (Howe et al., 2013), kot so "varovana stanovanja", "oskrbovana stanovanja", "upokojenska naselja", "enote za samostojno življenje", "enote za samooskrbo", "vasi za samostojno življenje", "naselje upokojenske skupnosti", "upokojenska skupnost z dolgotrajno oskrbo", »zelene hiše« in podobno

(Miskovski et al., 2015, Croucher et al., 2005). Oskrbovana stanovanja (angl. sheltered housing), je eden najpogostejših izrazov, ki se v Združenem kraljestvu (UK) uporablja za opis specializiranih stanovanjskih naselij, omejenih na starejše od 55 let (Gray in Worlledge, 2018). Trenutno v EU primanjkuje stanovanj za upokojence. Harding in drugi (2018) so pripravili izčrpen in kritičen pregled dejavnikov na strani ponudbe, ki so ustvarili takšne razmere. Nedavne študije v Združenem kraljestvu so pokazale, da ustrezna stanovanjska ureditev brez ovir za polovico zmanjša pojavnost padcev in s tem povezane stroške zdravstvenega varstva zaradi nesreč (Wood, 2017). Losekoot in Theresa (2018) sta raziskala razmeroma nov pojav velikih upokojenskih vasi na Novi Zelandiji, ki jih razvijajo velike korporacije. V ZDA sta bila v 20 let stari literaturi opredeljena dva glavna modela nastanitve starejših, ki potrebujejo pomoč drugih: skupnosti za stalno oskrbo starejših (continuing care retirement communities - CCRC) in oskrbovana stanovanja. CCRC delujejo že od konca druge svetovne vojne. Starejši prebivalci se lahko preselijo v samostojne stanovanjske enote, če so sposobni samooskrbe. Spremembe v potrebah po oskrbi se v CCRC prilagodijo od samostojnih domov prebivalcev do oskrbovanih stanovanj ali domov za starejše na kraju samem vse do paliativne oskrbe (Croucher et al., 2005). V Avstraliji in ZDA je upokojensko naselje možna, sprejemljiva življenjska ureditev za starejše ki spodbuja socialno interakcijo, izboljšuje varnost in kakovost življenja in spodbuja neodvisnost (Gardner et al., 2005). Obstaja več modelov "starejšim prijazne skupnosti" (Menec in Nowicki, 2014). Pregled teh modelov je pokazal, da starejšim prijazne skupnosti ponujajo tako družbeno kot fizično okolje, ki se medsebojno krepita. Gradnja skupnosti velja za eno od možnih rešitev za razvoj starosti prijazne skupnosti (Greenfield et al., 2015; Lui et al., 2009). Ti avtorji so dokazali, da imajo participativni in skupni modeli upravljanja pozitiven vpliv na vključevanje. Strokovno voden razvoj skupnosti, ki aktivno vključuje starejše odrasle, lahko ustvari prijaznejše in spodbudnejše okolje skupnosti. Raziskave tudi kažejo, da je treba pri prostorskem načrtovanju upoštevati potrebe oseb z demenco (Biglieri, 2018). Pri razvoju koncepta starosti prijaznih mest, ki ga je pripravila Svetovna zdravstvena organizacija (WHO), so se pojavile zahteve glede oblikovanja ustreznih podatkovnih zbirk in s tem povezanih raziskav (Fitzgerald in Caro, 2014; Greenfield et al., 2015; Scharlach in Lehning, 2013). V vseh omenjenih delih avtorji razlikujejo med neprilagojenimi in prilagojenimi družinskimi stanovanji za starejše ter specializiranimi stanovanji, kot so oskrbovana stanovanja za samostojno življenje in oskrbovana stanovanja z oskrbo v njih kot na domu. V praksi pa je koncept "oskrbovanih stanovanj" v Sloveniji gradbeniški koncept in ne vključuje nujno storitev dolgotrajne oskrbe. Dejstvo, da stanovanja z oskrbo kot del stanovanjskega fonda ne vključujejo nujno tudi storitev dolgotrajne oskrbe, je razvidno iz Pravilnika o minimalnih tehničnih zahtevah za graditev oskrbovanih stanovanj za starejše in o načinu zagotavljanja pogojev za njihovo obratovanje (2004). Leung in soavtorji (Leung et al., 2013, str. 659; 2016, str. 1; 2017, str. 13) v več člankih proučujejo povezave med upravljanjem objektov, udobja in opreme, tveganji in zdravjem starajoče se generacije ter učinki na kakovost življenja. Temeljotov Salaj in Lindkvist (2021) sta poudarila, kako so povezava med oblikovanjem grajenega okolja, kakovostjo življenja posameznikov, socialno strukturo družbe in poslovnim razvojem tesno povezani med seboj. Remillard-Boilard, Buffel in Phillipson (2017, str. 146) so raziskovali sodelovanje starejših prebivalcev pri soustvarjanju starosti prijaznih skupnosti. Tako Temeljotov Salaj in drugi (2020) prikazujejo primer interaktivnega orodja za demokratično vključevanje

in obveščanje različnih vrst državljanov v proces sooblikovanja in preoblikovanja njihovega okolja.

**Razvoj dolgotrajne oskrbe v Sloveniji**

Hitro staranje prebivalstva in hkratno zmanjševanje deleža mladega prebivalstva v sodobnih družbah, tudi v Sloveniji, sta korenito vplivala na socialne in zdravstvene sisteme, ki so bili do nedavnega razmeroma stabilni. (Flaker idr., 2008; Österle, 2011; Leichsenring idr., 2013; Mali, 2013). Razmerje med osebami, ki ponujajo pomoč, in osebami, ki jo prejemajo, je zelo upadlo in po projekcijah prebivalstva naglo upada še naprej. Posledično se je povečalo tveganje, da ne bo zagotovljena ustrezna oskrba in podpora starejšim (Flaker idr., 2008; Filipovič Hrast idr., 2014; Billings idr., 2013).

Ocenjuje se, da se bo do leta 2020 število starejših od 65 let, ki bodo potrebovali dolgotrajno oskrbo, povečalo s sedanjih 30.000 na 40.000. Zaradi teh demografskih sprememb je slovenska vlada v zadnjih desetletjih sprejela številne strateške dokumente, na primer Strategijo varstva starejših do leta 2010, (2006), Resolucijo o nacionalnem programu socialnega varstva 2013-2020 (2013), Resolucijo o nacionalnem planu zdravstvenega varstva 2008-2013 (2008), Strategijo obvladovanja demence v Sloveniji do leta 2020, (2016) in Strategijo aktivnega staranja (2017), danes pa Državni zbor sprejema temeljni zakon tega področja. V Sloveniji obstajajo trije formalni sektorji, ki nudijo pomoč starejšim: (1) javni sektor s centri za socialno delo, domovi za starejše[73], centri za pomoč na domu (npr. oskrba na domu) ter izvajalci drugih javnih storitev in oblik bivanja, npr. oskrbovanih stanovanj z oskrbo; (2) zasebni sektor ter (3) nevladne in prostovoljske organizacije, ki sodelujejo npr. z društvi upokojencev, skupinami za samopomoč itd. (Mali, 2008; 2010; 2011; Hlebec, Mali, Filipovič Hrast, 2014). Kritične študije (Mali, 2008; 2010, 2011, 2016; Flaker idr., 2015; Mali idr., 2018) raziuskujejo vplive negativnih elementov institucionalnega varstva, ki vplivajo na kakovost življenja starejših (Mali in Kejžar, 2019). Pomembno je, da teh ugotovitev ne spregledamo, temveč poskušamo najti rešitve za odpravo težav. Zato sta deinstitucionalizacija (Flaker idr., 2015) in razvoj skupnostnega varstva (Flaker idr., 2008; Mali, 2017, 2019) v zadnjih desetletjih osrednji usmeritvi razvoja socialnega dela na področju dolgotrajne oskrbe. Kljub dolgoletnemu prizadevanju za prehod v skupnostno oskrbo je sistem oskrbe v Sloveniji še vedno izrazito institucionaliziran. V institucijah živi več kot 22.000 ljudi, v začasnih strukturah pa le 1.200, od katerih jih več kot 1.000 prejema precej intenzivne storitve (Flaker idr., 2015). Ljudje, ki si ne morejo pomagati z lastnimi denarnimi viri in družino imajo kljub razmeroma dobro razvitim skupnostnim storitvam praviloma zelo malo možnosti, da bi ostali v skupnosti, kjer imajo dolgoletno spletene socialne vezi. Zaradi sistema financiranja, kulture oskrbe in pomanjkanja integriranega sistema storitev je oskrba v skupnosti mogoča pretežno za osebe z manj intenzivnimi potrebami. Kljub številnim inovacijam in selitvi večjega števila stanovalcev v objekte začasnih storitev (npr. dnevne centre) še vedno prevladuje oskrba v DSO-jih (Hlebec in Mali, 2013; Filipovič Hrast et al., 2014; Mali et al., 2018). Osebno prilagojene intenzivne storitve, ki najbolje odgovarjajo na

[73] Dom za starejše v Sloveniji (DSO) je ustanova, ki zagotavlja bivanje, zdravstveno nego in v nekaterih primerih tudi oskrbo na domu v skupnosti, tj. na družinskem domu.

potrebe uporabnikov, so premalo razvite (npr. osebna asistenca, individualni načrti oskrbe in paketi storitev) ali pa so neustrezno urejene in premalo intenzivne (npr. oskrba na domu). Občine igrajo pomembno vlogo z zagotavljanjem mreže izvajalcev storitev pomoči na domu, podeljevanjem koncesij nekaterim izvajalcem (Zakon o socialni pomoči, 2007), subvencioniranjem vsaj 50 % stroškov storitve (Pravilnik o metodologiji za oblikovanje cen socialnih storitev, 2006) in s pomočjo uporabnikom storitev pomoči na domu pri njihovem financiranju.

## Metodologija

### Raziskovalna vprašanja

V študiji, ki je del projekta Razvoj socialne infrastrukture in storitev za zagotavljanje dolgotrajne oskrbe (J6-9396), nas je zanimalo, kako občine ocenjujejo ustreznost oskrbe glede na potrebe starejših. Občine imajo v obstoječem sistemu dolgotrajne oskrbe pomembno vlogo, saj sofinancirajo institucionalne in skupnostne oblike oskrbe.

Oblikovali smo dve raziskovalni vprašanji:

1. *Kako obstoječe oblike družbene infrastrukture za dolgotrajno oskrbo ustrezajo potrebam starejših?*
2. *Katere oblike družbene infrastrukture za dolgotrajno oskrbo bi bilo treba razviti v prihodnosti?*

Za vsako raziskovalno vprašanje (RQ) smo oblikovali naslednja podvprašanja:

RQ1.1: Kako ocenjujete trenutno stanje družbene infrastrukture dolgotrajne oskrbe starejših, ki živijo na domu?
RQ1.2: Kako ocenjujete trenutno stanje družbene infrastrukture dolgotrajne oskrbe starejših v oskrbovanih stanovanjih z oskrbo?
RQ1.3: Kako ocenjujete trenutno stanje družbene infrastrukture dolgotrajne oskrbe starejših v domovih za starejše?

Ocena posamezne vrste oskrbe je bila sestavljena iz naslednjih meril:

- ustreznost zagotavljanja oskrbe potrebam starejših,
- finančna dostopnost za uporabnike in izvajalce, organizacija oskrbe (osebje, izvajalci),
- strukturne določbe (pravila, zakoni, zakonodaja).

RQ2.1: Ali nameravate glede na trende, ki napovedujejo naraščanje števila starejših, razširiti svoje storitve?
RQ2.2: Ali nameravate zagotoviti nove in alternativne oblike socialne infrastrukture dolgotrajne oskrbe starejših?
RQ2.3: Zakaj ste se odločili za zagotavljanje oskrbe starejših zunaj doma?
RQ2.4: Katere možne rešitve socialne infrastrukture za starejše v dolgotrajni oskrbi se vam zdijo ustrezne?

Načrti razvoja oskrbe so bili izdelani za obdobje treh, petih in desetih let.

### Raziskovalna zasnova in podatki

Raziskava ima značilnosti kvalitativnega raziskovanja, ki v središče pogovora postavlja intervjuvanca, njegov pogled na raziskovalni problem, raziskovalec pa je

v vlogi poslušalca, ki pogovor usmerja k raziskovalnim vprašanjem, hkrati pa intervjuvancu daje prostor, da izrazi, kar mu je pomembno. Uporabili smo enega od petih kvalitativnih pristopov po Creswellu (2013, str. 83), in sicer študijo utemeljene teorije, v kateri raziskovalec oblikuje splošno razlago procesa, dejanja ali interakcije, ki se oblikujejo na podlagi stališč velikega števila udeležencev. Tak raziskovalni pristop je značilen predvsem za raziskave na področju socialnega dela (Mesec, 1998; Flaker idr. 2019; Mali in Grebenc, 2021), sledili pa smo mu tudi v pričujoči raziskavi, saj je potekala v specifičnem obdobju, ko je imel ob epidemiji COVID- 19, ki je prizadela predvsem starejše ljudi, razvoj dolgotrajne oskrbe posebna prioriteta. V Sloveniji je 212 občin oziroma krajevnih skupnosti, od katerih je imelo tedaj 11 občin status mestne občine. V Sloveniji Zakon o lokalni samoupravi (2007) v 16. členu določa, da lahko občina pridobi status mestne občine, če njeno območje obsega mesto z najmanj 20.000 prebivalci in najmanj 15.000 delovnimi mesti, od katerih je najmanj polovica v terciarnem in kvartarnem sektorju, ter je geografsko, gospodarsko in kulturno središče svojega gravitacijskega območja. Država lahko na občino prenese izvajanje določenih nalog iz svoje pristojnosti v zvezi z razvojem mesta. V skladu s to določbo lahko občine organizirajo in načrtujejo oskrbo starejših, zato smo jih vključili v raziskavo. Zaradi majhnega števila občin smo se odločili, da k sodelovanju povabimo vse.

Maja in junija 2021 smo opravili poglobljene intervjuje s predstavniki devetih od enajstih mestnih občin (Celje, Koper, Kranj, Maribor, Slovenj Gradec, Ptuj, Velenje, Murska Sobota, Novo mesto), ki so se odzvale našemu vabilu. Intervjuvali smo predstavnike občin, ki delujejo na področju zdravstvenega in socialnega varstva od dveh let in pol do 28 let. Uporabili smo bolj oseben pristop, saj smo najprej vsakega anketiranca posebej po telefonu povabili k sodelovanju v tej raziskavi. Ko je povabilo sprejel, smo se nato dogovorili za intervju po metodi Zoom. Nekateri so prosili, da jim vprašalnik pošljemo vnaprej, da bi se lahko bolje pripravili. Dva intervjuja sta bila opravljena v pisni obliki, saj so anketiranci sklenili, da bi jim zapisovanje odgovorov omogočilo tudi posvetovanje s sodelavci. Najbolj očitna pomanjkljivost je seveda pomanjkanje osebnega stika, možnost zbiranja podatkov tudi z opazovanjem pa je bila močno omejena. Vprašalnik je temeljil na kombinaciji kvantitativnih in kvalitativnih podatkov, pri čemer so anketiranci svoje odgovore ocenili po Likertovi lestvici od 1 do 5 (Creswell, 2013) in nato opisali vsako oceno. Pridobljeni kvalitativni empirični podatki so bili obdelani po metodi kvalitativne analize sociološkega gradiva (Mesec 1998, str. 102). Izvedli smo odprto kodiranje tako, da smo ustreznim delom besedila pripisali poseben pojem in jih oštevilčili. Temu je sledilo razvrščanje pojmov, pri katerem smo zbrali in združili pojme v iste kategorije ter jim pripisali ustrezne izjave. Zadnji del analize podatkov je bila opredelitev zbranih pojmov in razvoj predhodne utemeljene teorije.

## Rezultati

Na podlagi raziskovalnih vprašanj in podvprašanj predstavljamo rezultate v treh točkah: (1) kako se na potrebe odziva oskrba starejših v obstoječih oblikah oskrbe; (2) kako se na potrebe odziva dolgotrajna oskrba z vidika dostopnosti in izvedljivosti; in (3) kako se v občinah načrtuje skupnostna oskrba.

Kako se na potrebe odziva oskrba starejših v obstoječih oblikah oskrbe

Večina anketirancev meni, da trenutna ponudba oskrbe na domu v veliki meri ustreza potrebam (oceni 4 ali 5). Občine želijo v čim večji meri zadovoljiti potrebe svojih občanov s storitvami pomoči na domu, zato so razvojno naravnane in se vključujejo v različne projekte oskrbe.

- Večina jih je vključena v pilotne projekte uvajanja dolgotrajne oskrbe, da bi zagotovile prehod na izvajanje sistemskega zakona o dolgotrajni oskrbi[74]. S projekti se ugotavljajo potrebe državljanov po oblikah formalne podpore, da bi lahko načrtovali nove storitve, ki bi bolje zadovoljile potrebe uporabnikov kot obstoječe.
  - Sogovorniki ugotavljajo, da primanjkuje zdravstvenih storitev oskrbe na domu, ki bi spadale pod dolgotrajno oskrbo, saj jih uporabniki nekaterih drugih storitev že prejemajo v obstoječem sistemu. Na primer, stanovalci domov za starejše so upravičeni do delovne terapije in fizioterapije, vendar starejša oseba, ki živi na domu in potrebuje tudi te storitve, do njih po veljavni zakonodaji ni upravičena.
  - V manjših skupnostih je povpraševanje po oskrbi na domu majhno. Ocenjujejo, da je razlog v tem, da je neformalna oskrba zelo razvita in je potreba po formalnih oblikah pomoči manjša. Omenjajo tudi, da je ljudi sram priznati, da ne morejo skrbeti sami zase in potrebujejo pomoč formalnih oskrbovalcev. Podobno ugotavljata Mali in Grebenc (2021), ko preučujeta povpraševanje po dolgotrajni oskrbi v občinah Ljubljana, Straža in Žirovnica.
  - V večjih občinah pa je povpraševanje veliko in obstajajo celo čakalne vrste za oskrbo na domu in institucionalno varstvo, kar kaže na to, da občani v različnih občinah nimajo enakih možnosti za oskrbo na domu, saj je kraj bivanja merilo za zagotavljanje te storitve.
  - V eni od večjih mestnih občin se omenja zanimiv trend, ki je posledica epidemije Covid-19. Zaradi večje umrljivosti starostne skupine med epidemijo[75] so se čakalne vrste za sprejem v domove za starejše skrajšale in posledično ni več čakalnih vrst za pomoč na domu.
- Omenjajo tudi strah ljudi pred obiski socialnih oskrbovalcev na domu zaradi virusa korone.
  - V dveh mestnih občinah z največjim številom naselij pa navajajo, da imajo težave pri zaposlovanju osebja, in to že več let. Prve so se začele že pred epidemijo Covid-19, v času gospodarskega razcveta, ko so pomočniki za socialno oskrbo odhajali na bolje plačana delovna mesta v poslovnem sektorju. Preden so se te težave rešile, so se pojavile nove, povezane z epidemijo, strahom pred okužbo, slabo plačanim delom in posledičnim pomanjkanjem zanimanja za zaposlitev na področju oskrbe. Vendar pa podatki Inštituta RS za socialno varstvo, ki izvaja letne analize socialne oskrbe na domu (Kovač, Orehek in Černič, 2019), kažejo nasprotni trend - plače socialnih oskrbovalcev se povečujejo, prav tako število zaposlenih socialnih oskrbovalcev.

[74] Zadnja različica zakona je v postopku sprejemanja na Vladi Republike Slovenije

[75] Po podatkih Skupnost socialnih zavodov Slovenije je 19. julija 2021 na sprejem v institucionalno varstvo čakalo 11.929 oseb.

- Pomoč v oskrbovanih stanovanjih v mestnih občinah ni na voljo v enakem obsegu kot oskrba na domu, saj tretjina anketirancev ni podala nobene ocene o ustreznosti ponudbe, tretjina jih meni, da trenutna ponudba zadovoljuje potrebe v srednji meri (ocena 3), tretjina pa meni, da ponudba zadovoljuje potrebe v nizki in zelo nizki meri (oceni 1 in 2).

Potrebe po oskrbovanih stanovanjih z oskrbo se od mestne občine do mestne občine razlikujejo. V nekaterih mestnih občinah aktivno sodelujejo pri načrtovanju in gradnji oskrbovanih stanovanj in vanje vpeljujejo tudi oskrbo, medtem ko je v drugih občinah to prepuščeno nepremičninskemu skladu Zavoda za pokojninsko in invalidsko zavarovanje, Stanovanjskemu skladu, zasebnikom ali domovom za starejše, ki zagotavljajo oskrbovana stanovanja z oskrbo. Potrebo po oskrbovanih stanovanjih z oskrbo običajno ocenijo tako, da preverijo, koliko ljudi v skupnosti se zanima za tovrstna stanovanja, in če so v skupnosti oskrbovana stanovanja, opazujejo, ali obstajajo čakalne vrste za najem. Gotovost najemnikov, da bodo nudene tudi storitve za starejše, je odločilnega pomena v mnogih primerih iskanja nastanitev starejših krhkih oseb. Ugotavljamo, da se ljudje bolj zanimajo za oskrbovana stanovanja z oskrbo, če so zgrajena v bližini doma za starejše, ki zagotavlja podporne storitve. Zato ponekod poudarjajo, da obstoječa oskrba v oskrbovanih stanovanjih z oskrbo ni dovolj dobra rešitev in da je treba rešitve iskati v razvoju podpornih storitev na domu, v stanovanjih, ki so si jih skozi desetletja ustvarili stari občani.

Polovica anketirancev meni, da trenutna ponudba domov za starejše zelo malo ustreza potrebam (ocena 1 in 2). Slabe kvantitativne ocene potrjujejo trditve, da je v vseh mestnih občinah čakalna vrsta za mesto v domu za starejše, kar pomeni, da ljudje ne morejo dobiti institucionalnega varstva, ko ga resnično potrebujejo. Čakalne vrste je treba razumeti v okviru razvoja dolgotrajne oskrbe. Lahko jih napačno razumemo kot pomanjkanje zmogljivosti institucionalnega varstva, vendar na bistvo problema odgovarjajo vsaj trije odgovori na naša vprašanja, ki jih lahko strnemo v tri odgovore:

(1) ni dovolj različnih vrst podpore socialne infrastrukture, ki bi ljudem omogočila življenje v skupnosti,
(2) ljudje niso dovolj obveščeni o drugih možnostih oskrbe v starosti,
(3) ljudje niso dovolj obveščeni o možnostih prilagoditve domačega okolja, ker najprej pomislijo na institucionalno oskrbo.

Kritike DSO-jev so pri tem predvsem naslednje:

- Domovi za starejše v nekaterih mestnih občinah so stari, stanovanjske razmere so slabe, več stanovalcev živi skupaj v sobah, kar ni tisto, kar si sedanje generacije starejših želijo, na kar je opozarjal že Imperl (2012).
- Lokacija domov za starejše je pogosto na obrobju mesta, ljudje pa bi radi živeli v domu za starejše v središču mesta. Po drugi strani pa nimajo izbire, če ni alternativ institucionalnemu varstvu. V takem primeru je razumljivo, da zaprosijo za sprejem v dom za starejše, ni pa nujno, da si tam tudi dejansko želijo.

Dobro so sprejete dejavnosti skupnostne oskrbe, kjer domovi za starejše nudijo pomoč na domu, imajo dnevne centre, dostavljajo kosila starejšim, ki živijo v svojih družinskih hišah, kar poudarjajo že Filipovič Hrast et al., 2014, podrobneje pa temu

lahko sledimo v Mali (2019). V teh primerih so domovi nekakšno središče za razvoj skrbi za starejše v skupnosti, skupnosti pa z njimi načrtujejo tudi nadaljnji razvoj dolgotrajne oskrbe (Mali in Grebenc, 2019; Mali, 2019).

## Smernice za nadaljnje aktivnosti

Novi zakon o dolgotrajni oskrbi predvideva gradnjo domov za starejše tipa A, ki nalaga intenzivnejše delo občin pri gradnji in organizaciji skupnostne oskrbe. Iz naših intervjujev sledi, da bodo v naslednjih treh letih mestne občine najpogosteje načrtovale gradnjo oskrbovanih stanovanj z oskrbo, podpirale prilagoditev obstoječih stanovanj, pa tudi sodelovale pri nadaljnjem financiranju oskrbe na domu vsaj na enaki ravni kot doslej Več pozornosti pa bodo posvetile tudi intenzivnemu preučevanje novih projektov za zagotavljanje brezplačnega prevoza starejših do osnovnih storitev (zdravstveni centri, trgovine, dostop do občinskega sveta itd.) ali dnevnega varstva. V nekaterih krajih so že ugotovili potrebo po brezplačnih obrokih, ki jih organizirajo kot javno kuhinjo za vse državljane. Med uporabniki je veliko starejših občanov. Poročilo Inštituta za makroekonomske analize in razvoj (2021) navaja, da je finančni položaj starejših/upokojenih v Sloveniji primerjalno precej slabši od povprečja EU, kar zmanjšuje možnosti za zdrav in aktiven življenjski slog ter vpliva na socialni položaj upokojencev, kakor tudi na zdravstveno blagajno, ko se zaradi tega pojavljajo hude bolezni in nesreče starostnikov pogosteje in prej, kot bi bilo pričakovati.

Spodbudne so posamezne akcije občin, kot je ustanovitev Sveta za starejše ali sprejem občinske Strategije za oskrbo starejših. Dobro je, če ima občina sprejete strateške dokumente, na podlagi katerih sprejema odločitve o prihodnjem razvoju dolgotrajne oskrbe, vendar to še vedno ni prednostna naloga v vseh občinah. V eni od mestnih občin so odkrito povedali, da starejši niso prva prioriteta in da se trenutno ukvarjajo s problemom brezdomstva. Tudi starejši so del brezdomcev2, mnogi pa bivajo v neprimernih stanovanjih, kar je v nasprotju s pravicami, ki jih narekuje tudi ustava. Žal v mnogih mestnih občinah še vedno trdijo, da problemi starejših, ki bodo kmalu predstavljali tretjino občanov, niso v ospredju družbenih vprašanj občine.

## Zaključki

Poročilo o staranju prebivalstva za leto 2021 (Ageing report 2021) napoveduje, da se bodo izdatki za dolgotrajno oskrbo v večini držav članic EU zaradi staranja evropskega prebivalstva več kot podvojili. Razvoj prilagodljivega stanovanjskega fonda je najboljša politika za zmanjšanje tveganj nesreč in s tem povezanih izdatkov za zdravstveno varstvo in dolgotrajno oskrbo. Da bi dosegli vključitev starejših ljudi z zmanjšanimi funkcionalnimi sposobnostmi v skupnost, je treba v njihovih skupnostih razviti ustrezen stanovanjski fond, vključno s storitvami, kot so stanovanja z oskrbo, oskrbovana stanovanja in »srebrne vasi«.

Človekovo dostojanstvo in spoštovanje človekovih pravic od evropskih držav članic zahtevata, da izvedejo deinstitucionalizacijo sistemov dolgotrajne oskrbe. Države članice EU morajo izvajati ukrepe, ki krepijo prehod iz institucionalnih v skupnostne, brez ovir zgrajene namenske stanovanjske objekte, druge socialne objekte in storitve. Zato se mora tudi struktura stanovanjskega fonda dinamično prilagajati hitri

dinamiki spreminjanja starostne strukture prebivalstva in tudi vrednotenju novih kohort starejših njihovega ekosistema.

Reševanje stanovanjske problematike je vsekakor kompleksno področje, ki ga je treba obravnavati interdisciplinarno. Pri iskanju rešitev je treba vključiti različne akterje na področju dolgotrajne oskrbe, vzpostavljanja prožnih rešitev na domu starejšega človeka in uresničevanja novih oblik stanovanj. Starejši bi morali imeti možnost izbire med različnimi oblikami in načini reševanja svojih stanovanjskih potreb, zato ne bi bilo dobro zanemariti razvoja alternativnih oblik. Pričakujemo lahko, da nam bo novi Zakon o dolgotrajni oskrbi, ki zahteva ustrezna oblikovanja podzakonskih aktov, omogočil prilagoditev grajenega prostora mestnih občin potrebam in željam naših staršev, starih staršev in drugih starejših občanov. V večjem pričakovanju je tudi posledica določbe novega Zakona o dolgotrajni oskrbi, ki bo z uvedbo domov tipa A začrtal večjo dejavnost občin na tem področju v Sloveniji. Bolj pa je treba premisliti tudi ustavne določbe o pravici do doma, ko gre za starejše občane, kot je predstavljeno v drugem poglavju tega članka. Dobre rešitve na tem področju bodo prispevale tudi k boljšemu zdravju starejših in manjši izpostavljenosti rizikom padcev in drugih nezgod, se pravi tudi nižjim izdatkom iz zdravstvene blagajne, kar bo pokazalo na družbeno vrednost vlaganj v socialno infrastrukturo za starejše prebivalstvo.

## Zahvala

Avtorji se zahvaljujejo Agenciji za raziskovalno dejavnost Republike Slovenije, ki je v okviru projekta J5—1784: »Ustvarjanje družbene vrednosti s starostnikom prijaznim upravljanem stanovanjskega sklada v vseživljenjskih soseskah« financirala to objavo. Ta raziskava je tudi prispevek v mozaik raziskav, ki služijo kot podlaga načrtu politik v evropskem INTERREG projektu ADRION-SI4CARE.

## Literatura in viri

Audefroy, J. (1994). Eviction trends worldwide and the role of local authorities the right to housing. *Environment and Urbanization*. 6(1), str. 8-24.

Ben-Bassat, A. in Dahan, M. (2008). Social rights in the constitution and in practice. Journal of Comparative Economics, 36, str. 103–119.

Billings, J.; Leichsenring, K.; Wagner, L. Addressing long – term care as a system – objectives and methods of study. In *Long - term care in Europe: improving policy and practice;* Leichsenring, K., Billings, J., Nies, H., Eds.; Basingstoke: Palgrave Macmillan, 2013; pp. 3–18, ISBN: 9781137032331.

Creswell, J. W. (2013): *Qualitative Inquiry and Research Design*. Los Angeles: Sage.
Croucher K.; Hicks, L.; Jackson, K. *Housing with care for later life: A literature review*; Joseph Rowntree Foundation: York, 2005; pp.142, ISBN: 978 1 85935 437 7.
Evropska socialna listina (1996). Uradni list RS, št. 24/1999 – Mednarodne pogodbe, št. 7/99.

Evropski odbor za socialne pravice (2007). *FEANTSA proti Sloveniji*. URL: https://www.feantsa.org/download/feantsa_v_slovenia_coe_decision_on_merits4782523804538636923.pdf.

Evropski odbor za socialne pravice (2008). *FEANTSA proti Franciji*. URL: https://hudoc.esc.coe.int/eng/#{%22ESCDcIdentifier%22:[%22cc-39-2006-dmerits-en%22]}.

Evropsko sodišče za človekove pravice (2001). *Sodba v zadevi Chapman proti Združenemu kraljestvu* z dne 18. 1. 2001.
Evropsko sodišče za človekove pravice (2012). *Sodba v zadevi Yordanova in drugi proti Bolgariji* z dne 24. 4. 2012.

Filipovič Hrast, M., Hlebec, V., Knežević Hočevar, D., Černič Istenič, M., Kavčič, M., Jelenc-Krašovec, S., & Mali, J. (2014). *Oskrba starejših v skupnosti: dejavnosti, akterji in predstave [Care for older people in the community: actions, actors and visions]*. Ljubljana: Fakulteta za družbene vede.

Flaker, V., Mali J., Kodele, T., Grebenc V., Škerjanc J. & Urek M. (2008). *Dolgotrajna oskrba: očrt potreb in odgovorov nanje [Long-term care: The outline of needs and responses].* Ljubljana: Fakulteta za socialno delo.

Flaker, V., Rafaelič, A., Bezjak, S., Dimovski, V., Ficko, K., Fojan, D., Grebenc, V., Kastelic, A., Mali, J., Ošlaj, A., Pfeiffer, J., Ramovš, J., Ratajc, S., Suhadolnik, I., Urek, M. & Žitek, N. (2015). *Priprava izhodišč dezinstitucionalizacije v Republiki Sloveniji [Preparation of starting points for deinstitutionalisation in the Republic of Slovenia]*. Ljubljana: Fakulteta za socialno delo.

Flaker, V., Ficko, K., Grebenc, V., Mali, J., Nagode, M., Rafaelič, A. (2019). *Hitra ocena potreb in storitev [Rapid assessment of needs and services]*. Ljubljana: Fakulteta za socialno delo.

Gardner, I. L., Browning, C., Kendig, H. (2005). Accommodation options in later life: Retirement village or community living? *Australasian Journal on Ageing*, let. 2005, št. 24, str. 188–195.

Gray, A., Worlledge, G. (2018). Addressing loneliness and isolation in retirement housing', Ageing & Society, let. 38, št. 3, str. 615–644.

Harding, A., Parker, J., Hean, S., Hemingway, A. (2018). Supply-side review of the UK specialist housing market and why it is failing older people*. Housing, Care and Support*, let. 21, št. 2, str. 41–50.

Hlebec, V. & Mali, J. (2013). Tipologija razvoja institucionalne oskrbe starejših ljudi v Sloveniji [Typology of institutional care development for older people in Slovenia]. *Socialno delo*, 52(1), 29-41.

Hlebec, V., Mali, J. & Filipovič Hrast, M. (2014). Community care for older people in Slovenia. *Anthropological notebooks*, 20 (1), 5-20.

Imperl, F. (2012). Kakovost oskrbe starejših: izziv za prihodnost [Quality of care for the older people: a challenge for the future]. Logatec: Firis Imperl & Co.: Seniorprojekt.

Kenna, P. (2012). Human Rights and Housing. V: Susan J. Smith (ed.). *International Encyclopedia of Housing and Home*. Cambridge, Elsevier, str. 703-708.

Kovač, N., Orehek, Š., & Černič, M. (2019). Analiza izvajanja pomoči na domu v letu 2019, končno poročilo [Analysis of the implementation of home help in 2019, final report]. Ljubljana: Inštitut Republike Slovenije za socialno varstvo.

Leichsenring, K., Billings, J. & Nies, H. (eds.) (2013). *Long-term care in Europe: improving policy and practice*. Basingstoke: Palgrave Macmillan.
Mednarodni pakt Združenih narodov o ekonomskih, socialnih in kulturnih pravicah (1966). Uradni list SFRJ – Mednarodne pogodbe št. 7/71.Zakon o lokalni samoupravi (2007). Ur.l. RS, No. 94/07.

Losekoot, E., Theresa, Z. (2018). 'Retirement villages: Hospitals or hospitality operations - Management attributes and traits', Journal of Hospitality and Tourism Management, let. 2018, št. 34, str. 75–81.

Mali, J. (2008). *Od hiralnic do domov za stare ljudi [From Alms-houses to Homes for the Older People].* Ljubljana: Fakulteta za socialno delo.

Mali, J. (2010). Social work in the development of institutional care for older people in Slovenia. *European journal of social work: the forum for the social professions*, 13 (4), 545-559.

Mali, J. (2011). An example of qualitative research in social work with older people: the history of social work in old people's homes in Slovenia. *Collegium antropologicum*, 35 (3), 657-664.

Mali, J. (2013). *Dolgotrajna oskrba v Mestni občini Ljubljana [Long-term care in Ljubljana Municipality]*. Ljubljana: Fakulteta za socialno delo.

Mali, J. (2016). Old age: the prime and neglect of social work. *Dialogue in praxis: a social work international journal*, 5 (18), 62-67.

Mali, J. (2017). The cultural context of long-term care. In: Rogers, H. C. (ed.). *Social work: practices, perceptions, challenges* (Psychology research progress) (pp. 63-90). New York: Nova Science Publishers.

Mali, J. (2019). Innovations in long-term care: the case of old people's homes in Slovenia. *Revija za socijalnu politiku*, 26 (2), 207-225.

Mali, J., & Grebenc, V. (2019). Rapid assessment of needs and services in long-term care. *Revija za socijalnu politiku*, 26 (2), 171-187.

Mali, J. & Grebenc, V. (2021). *Strategije raziskovanja in razvoja dolgotrajne oskrbe starih ljudi v skupnosti [Strategies for research and development of long-term care for the elderly in the community]*. Ljubljana: Fakulteta za socialno delo.

Mali, J. & Kejžar, A. A model of integrated care of residents with dementia : a case of innovation in long-term care with accommodation in Slovenia. *Ljetopis socijalnog rada*. 2019, letn. 26, br. 3, str. 447-469. ISSN 1846-5412.

Mali, J., Flaker, V., Urek, M. & Rafaelič, A. (2018). *Inovacije v dolgotrajni oskrbi. Primer domov za stare ljudi [Innovations in long-term care. The case of homes for older people]*. Ljubljana: Fakulteta za socialno delo.

Mayhew, L., Rickayzen, B. Smith, D. (2017). *Does living in a retirement village extend life expectancy? The case of Whiteley Village,* Cass Business School, Faculty of Actuarial Science and Insurance, City, University of London.

Menec, V.H., Nowicki, S. (2014). Examining the relationship between communities' "age-friendliness" and life satisfaction and self-perceived health in rural Manitoba, Canada. Rural and Remote Health, let. 2014, št. 14; 2594, str. 1–14.
Mesec, B. (1998). *Uvod v kvalitativno raziskovanje* [Introduction to quality research methodology]. Ljubljana: Visoka šola za socialno delo

Ministrstvo za delo, družino, socialne zadeve in enake možnosti (1997). *Strategija varstva starejših do leta 2010 - solidarnost, sožitje in kakovostno staranje Prebivalstva*. Ljubljana: Ministrstvo za delo, družino, socialne zadeve in enake možnosti.

Older People for a Better Quality of Life at Home, better known as Older People for Older People (n.d.), https://zdus-zveza.si/programi-in-projekti/starejsi-za-starejse/o-programu/ (1. 12. 2021)

Österle, A. (ed.) (2011). *Long-term care in Central and South Eastern Europe*. Frankfurt am Main: P. Lang.

Peroni, L. in Timmer, A. (2013). Vulnerable groups: The promise of an emerging concept in European Human Rights Convention law. *International Journal of Constitutional Law*. 11(4), str. 1056–1085.

*Pravilnik o standardih in normativih socialnovarstvenih storitev (*2010). Ur. L. RS, št. 45/10, 28/11, 104/11, 111/13, 102/15, 76/17, 54/19 in 81/19.

*Pravilnik o minimalnih tehničnih zahtevah za graditev oskrbovanih stanovanj za starejše ter o načinu zagotavljanja pogojev za njihovo obratovanje* (2004). Ur.L.RS No. 110/2004
*Resolucija o nacionalnem programu socialnega varstva za obdobje 2013-2020* (2013). *Ur. l. RS*, št. 39/2013: 4668–4680.

*Resolucija o nacionalnem planu zdravstvenega varstva 2008-2013* (2008). *Ur. l. RS,* št. 72/2008: 9977 – 10173.

Scharlach, A.E., & Lehning, A.J. (2016). *Creating Aging – Friendly Communities*. New York: Oxford University Press.

Splošna deklaracija Združenih narodov o človekovih pravicah (1948). Uradni list RS, št. 24/2018)

UMAR (2021). *Evropski steber socialnih pravic*. Najdeno 10. 10. 2021 na https://www.umar.gov.si/publikacije/evropski-steber-socialnih-pravic/Republika Slovenija (n.d.). Najdeno 15. 6 .2021 iz https://www.gov.si/zbirke/projekti-in-programi/izvedba-pilotnih-projektov-ki-bodo-podpirali-prehod-v-izvajanje-sistemskega-zakona-o-dolgotrajni-oskrbi/.

UMAR (2017). *Active ageing strategy Available online*: https://www.umar.gov.si/fileadmin/user_upload/publikacije/kratke_analize/Strategija_dolgozive_druzbe/UMAR_SDD_ang.pdf (accessed on 21. 7. 2021).

UN (2019). *World Population Ageing 2019*. New York: United Nations.

UN (2014). *The Right to Adequate Housing*. URL: http://www.ohchr.org/Documents/Publications/FS21_rev_1_Housing_en.pdf

*Uredba o merilih za določanje oprostitev pri plačilih socialno varstvenih storitev* (2004). Ur. l. RS, št. 110/04, 124/04, 114/06 – ZUTPG, 62/10 – ZUPJS, 99/13 – ZUPJS-C in 42/15.

*Uredba o merilih za določanje oprostitev pri plačilih socialno varstvenih storitev* (2004). Ur. l. RS, št. 110/04, 124/04, 114/06 – ZUTPG, 62/10 – ZUPJS, 99/13 – ZUPJS-C in 42/15.

*Ustava Republike Slovenije* (1991). Uradni list RS, št. 33/91-I.

*Zakon o osebni asistenci* (Uradni list RS, št. 10/17, 31/18 in 172/21)

Wood, C. (2017). *Social Value of Sheltered Housing*, London: Demos, 14 str.1.

# An Explorative Research towards the Feasibility of Blockchain in Enhancing the Implemented Material passport and Life Cycle Assessment Methodology within Construction Sector in The Netherlands

**Amalia Widyasningrum**

Saxion University of Applied Sciences, The Netherlands

## SUMMARY

Stimulating economic growth and material resources, as well as preserving the world's population's livelihood are culminating the implementation of linear economy in the construction industry that refuses to appreciate the importance of recycling, reusing, and efficient waste management, contributing to material waste, and greenhouse gas emissions, consequently damaging the environment. A lack of information is often cited as main problems that lead to waste and greenhouse gas emission release. Therefore, material passport and life cycle assessment methodology (LCA) are implemented to fill this information gap; nevertheless, material passport and LCA methodology face barriers that could prevent the optimization their use. Using semi-structured interview, there is analyzed which opportunities, barriers of material passport and LCA methodology which aspects can be addressed through salient features of blockchain technology. Concluding that disintermediation, transparency, as well as immutability being the prominent features offered by blockchain can add value to the applied material passport and LCA methodology, through the identification of material ownership as well as assessment the validity and reliability of information source, and the calculation of energy usage, both material and built environment carbon footprint. This research contributes to the realization of sustainable construction industry in the Netherlands through carbon footprint monitoring as well as waste reduction by highlighting important aspects of material passport and LCA methodology and which features of blockchain technology may add value to the implemented tools.

Keywords: blockchain, LCA, material passport, barriers

## Problem Description

The Paris Agreement of 2015 is the first global agreement composing policy and obligations for 195 countries to keep the global temperature rise below 2 Celsius. The accord aims to restrict the concentration of released greenhouse gases in the atmosphere, to prevent devastating consequences of climate change, ranging from health problems, food security, and extreme weather (Ummenhofer & Meehl, 2017; Agreement, 2015). The convention is a catalyst to unify every country in the world in nourishing the preparedness to combat climate change and its impacts on the

face of the earth and sustenance of the life of the world's population. The Paris Agreement is considered the ladder of climate change mitigation, which requires the world to take courageous and ambitious actions addressing the environmental problems, specifically the rising carbon dioxide levels, amidst simultaneous increasing human activities and industrialization (Mgbemene et al., 2016). The impact of the high intensity of human activities is justified by the rising levels of carbon dioxide added into the air; in 2015, the world surpassed a carbon threshold of 400 parts per million, which denoted a substantial increase in 2019 of 410.5 parts per million (Plenio, 2020). In 2020, the global spread of COVID-19, caused mere reduction of carbon emission by 4-7 percent that same year (Plenio, 2020). The insignificant decreased carbon dioxide level during the pandemic leads to the expectation that the carbon emission to continue rising each year due to the high energy and resource consumption, despite mobility limitation (Plenio, 2020; Solomon et al., 2009). To meet the goals of the Paris Agreement 2015, in which people from all walks of life are responsible for preventing the rising global temperature.

Human activities have induced a considerable increase in atmospheric carbon dioxide concentration by 47% since the first industrial revolution (Oreskes, 2004). The economic growth aided by industrialization is accommodating the use of abundant resources and transforming them into services and products to augment life quality and living standard, driving to the rising carbon dioxide levels through the burning of fossil fuels such as coal and oil, which merges carbon with oxygen in the air to create carbon dioxide, consequently released into the atmosphere, resulting in incremental warming and leading to the greenhouse effect (Evliya, 2007). Further, extravagance and overconsumption of resources contribute to the greenhouse effect through combustion. The emitted particles symbolize the amount of energy and resources used in the manufacturing process. Natural resources, namely, water, fuel, metal, and timber, added in the production process results in the emission of carbon dioxide and other greenhouse gases (SPREP, 2012). Therefore, channelizing key players' focus on environmental destruction to emission reduction and waste prevention generates a new way of thinking in tackling global climate change.

The adoption of the linear economy as the current global economic model has reinforced the importance of take-make-dispose while neglecting the environmental aspects; namely, the practice of recycling, reusing and emphasizing waste management in which the goods are produced from raw materials, sold, used, and disposed of waste, being the final stage of its lifecycle (Ellen MacArthur Foundation, 2013). The domination of the linear economy in the global market has brought success in generating material wealth in industrial nations, boosting economic growth, and enhancing people's livelihood (Kok et al., 2013). According to Sustainable Europe Research Institute (SERI), around 21 billion tons of material used in the production process are not incorporated in the finished goods due to the manufacturing process's inefficiency, for instance, storage problems or uneven distribution of information. Regarding the statistics conducted by Eurostat, Europe has produced 2.5 billion tons of waste, of which the construction industry contributed 36.4%. In 2018, 38.7% of the waste was dumped in landfills, and merely 40% is being recycled, reusing or composting, which is losing its potential to its original

function and source of energy. However, continuing this model will adversely impact the face of the earth as a place to live as well as a place to providing natural resources to sustain the life of society. Simultaneously, the world's population is expected to grow to 8.5 billion by 2030 and 9.7 billion by 2050 (United Nations, 2015).

The construction industry plays an essential role in building the welfare of the Dutch society, ranging from the buildings, houses, and infrastructures are incorporated of resources intensive activities that require finite resources, namely, stone, concrete, and steel. The built assets in the Netherlands are dependent upon 68% imported raw materials (Ministry of Economic Affairs, 2016). Moreover, the construction sector remains the largest contributor of 35% global carbon dioxide emissions, 40% total energy consumption, 30% water consumption, 50% resource consumption despite being the forefront of waste management in Europe (Transition Agenda, 2018). The continuous adoption of the linear economy will threaten not only the availability of the material resources, but also the environmental impacts. The take-make-dispose model fails to recognize the balance between environment and capital. Hence, resulting in a large amount of waste, some are recycled to generate lower quality recovered material, and others are dumped in landfills (Odijk & Bovene, 2014).

Gaining traction on Sustainable Development Goals raises awareness of the importance of safeguarding the environment and creates a realization that transition from conventional linear economy model to the circular economy model in the construction industry. Geissdoefer (2017) referred to "circular economy as a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can be achieved through durable design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling". A circular economy creates a closed loop that enables waste prevention and resource efficiency while advocating manufacturers to produce high-quality products to extend their lifespan combatting product life cycle, and redesign products to facilitate repurposing and retrieval of material (Webster, 2017). Implementing a straight-line conventional economy in resource and energy-intensive sectors will deplete a large number of resources, pollute the environment, and use excessive amounts of fossil fuels, adversely affecting the sustainability of the earth. The circular economy within the construction industry encourages the main actors to shift the profit-centred approach of constructing infrastructure without exhausting natural resources excessively, contaminating the environment, and degrading ecosystems.

Becoming a global phenomenon, the urgency of climate change has attracted Non-Governmental Organizations' (NGOs) to persist their commitment to social movements intended to raise the awareness of environmental protection, specifically to big corporations, being the key players in climate change. Further, environmental activism can reshape stakeholders' corporation's attitudes, from the customers' engagement to environmental issues, media attention to capture environmental misconduct, and environmental regulators to pressure big firms to preserve the environment. In responding to society's demands, Corporate Social Responsibility (CSR) is becoming an instrument to signal environmental protection

initiatives (Flammer, 2013). As CSR's expectation increases, transparency becomes paramount; therefore, firms are identifying the urgency to act on environmental safeguard, which drives the advent of green firms to take part in embracing sustainability.

The ambitious goal of The Netherlands to be circular constructed environment by 2050 is impelling the local construction industry to face a significant transition in encountering climate change that requires professionals to commence working under totally different methods (Transition Agenda, 2018). This means an active collaboration of players in construction sector is essential to build and design buildings as well as infrastructure that highlights the importance of waste minimization and carbon emission monitoring. The utilization of existing tools and methodology, such as material passport and LCA methodology, may assist construction firms on the journey of adopting circular economy.

Material passports are created with the aim to represent the material that are included in the constructed buildings. The used resources are recorded and transferred from supplier, contractor, owner, and the demolisher or dismantler of a building, enabling the key players to obtain sophisticated and holistic understandings of not only the physical components, but also social, environment, and economic value of a building (Van Sante, 2017). The complex nature and the large amount of data that need to be accommodated by material passport offer a promising opportunity for information management system by allowing the traceability of materials along with its characteristics. In order to develop well-integrated material passport, information sharing within supply chain has become an important instrument. However, confidentiality and accuracy of the exchanged information, reliability, incentive issues, costs of the information management system are becoming root of the problem in the effective implementation of material passport (Damen, 2012; Mukhtar et al., 2013).

Life Cycle Assessment (LCA) methodology provides comprehensive view of environmental and social impacts in relation with the products, services or activities throughout its life cycle, starting from the examination of its input conversion, design, raw material extraction, output production, product usage as well as disposal (Gonzales 2018; Linkov et al. 2017). Data is at the heart of LCA process, as data gathering activity is taking up to 70-80% of the allocated cost and time (Miah et al., 2018). Corroborating data is unable to compensate the lack of information, assumptions about the sources or to use averaged data are made to solve the crisis of data availability, creating skepticism towards the LCA results, and its data quality (Van Den Meer, 2018). Another issue lies upon the difficulty in verifying the social impact declaration that are derived from sustainability standards and certifications, requiring expensive, and laborious auditing process (Mieras et al., 2019). Therefore, data collection and gathering processes are often considered as costly, time-consuming, and challenging task (Fauzi et al., 2019).

A system that possesses the ability to propose systematic quality control, resulting in regularly updated data may be the potential solution for these issues, as it will increase transparency, traceability, and credibility of data which are becoming the fundamental of trust building among supply chain participants, and bolstering the

decision making within construction companies. Taking advantage of technology advancement will help actors of circular economy connect the dots of demand, supply, manage, and store a large amount of data in a more efficient way (Pomponi & Moncaster, 2017). Without the need to rely upon an intermediary, the emerging blockchain technology shows the possibility of becoming a solution for construction firms to increase transparency, display information concerning carbon footprints and the source of materials (Dutch Blockchain Coalition, 2017). The research contributes to the field by outlining the advantages and disadvantages of blockchain implementation, and how these features could be added value to the implemented LCA and material passport in the construction industry in The Netherlands as a whole. Therefore, research findings will be useful for the construction companies in The Netherlands that intends to go circular by helping them signal their clients towards curbing carbon emissions and preventing material waste. Blockchain may serve as a tool of accountability and verifiability from the company to clients and society and meet the present's needs without compromising the life of future generations.

### Research Objectives

The overall aim of this explorative research is to determine the feasibility of blockchain so that it can enhance the application of Life Cycle Assessment methodology and material passports as a way towards the circular construction industry in the Netherlands. To achieve this aim, three objectives have been identified:

1. *Explain the advantages and disadvantages of blockchain technology implementation within the construction sector in the Netherlands.*
2. *Understand the prominent features of blockchain technology that could be value-added in improving the established Life Cycle Assessment methodology and material passports to address material waste decrement and carbon footprint monitoring.*

### Main research questions:

To what extent to which blockchain's feasibility is to enhance the application of LCA methodology and Material Passports towards the circular construction industry in the Netherlands? In order to answer the main research questions, the following three sub-research questions have been identified:

1. *What are the advantages and disadvantages of the implementation of blockchain technology in the construction industry in the Netherlands?*
2. *What are the salient features of blockchain technology that can enhance Life Cycle Assessment and Material passports to monitor carbon footprint and reduce material waste?*

## Literature Review Methodology

### Identification of keywords

The following keywords and abbreviations are used in order to retrieve the supporting articles and journals for the research, namely, *circular economy, circular*

*construction, blockchain, life cycle assessment, climate change, excess material waste, excess material exchange, material passport, circular built assets, carbon monitoring, waste reduction, climate change, distributed blockchain-based ledger, information exchange, waste management, global warming, the industrial revolution.*

Selection of search engines

The following search engines have been used in order to find the relevant journals and articles: Google Scholar, Web of science, Scopus, Science direct, ResearchGate, Springer, Semantic Scholar.

Selection number of articles

The search engine's search attempt is resulting in the collection of hundreds of professional articles and journals. Therefore, prioritization is necessary to filter the relevant journals and professional articles by combining keywords that fit with the research topic and research questions.

Literature review methodology

The search for relevant journals and professional articles is composed of the following sources: Journals (retrieved from reputable sources) are the primary sources; Professional articles (retrieved from government bodies and construction consultants); Theses and dissertations; Websites; Conference Proceedings.

Article search method

The following journals provided most of the used relevant journals and professional articles: The Dutch ministry of infrastructure and the environment; Built Environment Project and Asset Management Journal; Renewable and Sustainable Energy Reviews; Structural Engineering and Construction Management; Earth and Environmental Science Conference; Automation in Construction; Sustainability Journals by Multidisciplinary Digital Publishing Institute; Journal of Industrial Information and Integration; CIB World Building Congress.

Research Method for other media

Relevant journals that are published by reputable publishers are the primary sources of this research. Professional articles from government bodies and construction consultants are used as secondary sources. The articles provide current statistical figures regarding environmental and construction-related issues—further corroborating sources such as theses, dissertations, and scientific review, websites. Relevant journals are selected based on both publishers and their authors' reputability, taking into account the year of publication. Theses and dissertations are retrieved from the University Library and the Internet. The professional articles, scientific reviews, and websites are obtained from Internet; search engines.

## Data Collection Method

Knowing that blockchain implementation as a means of improving the construction industry's circularity is a relatively new topic, it has not been studied much, and there are few examples in a practical world. The focus of this research is to obtain an understanding of the feasibility of the blockchain technology integration as an added value with Life Cycle Assessment Methodology and Material Passports, aim to monitoring the carbon footprint as well as reducing the material waste. Therefore, gaining a holistic understanding is crucial, which can be done through a qualitative approach.

Qualitative exploratory research is suitable for this study because of the absence of theory and clearly defined hypotheses by previous studies. There are little research and knowledge available regarding the relationship between each topic (blockchain, material passport, and LCA). Besides, to get the desired answer to the research questions, participants' experiences-based information is needed, specifically those who had experience with material passports, Life Cycle Assessment methodology. Hence, interviews are the most appropriate data collection method that will expose the author to the interviewees' knowledge, experiences, and opinions on the implementation of Life Cycle Assessment Methodology and material passport within the construction industry in the Netherlands.

Semi-structured interviews will be composed of the fixated main topics and questions. However, the author, being the interviewer, will rely on further questions when something may spark her interest during the interview. Furthermore, it will allow the author to explore some topics while abiding by the main topics and questions as guidelines. The population of the interview is an expert whose company has implemented Life Cycle Assessment methodology and material passport within his construction operation, as an attempt to gain an understanding of LCA and material passports implementation. The interview aims to understand the barriers that could hinder the implementation of material passports and life cycle assessment. The drivers and requirements that could boost material passports and life cycle assessment are also addressed during the interview. The results from the interview with the construction expert will be analysed. To get a comprehensive understanding of how blockchain technology can add value to the existing life cycle assessment methodology and material passports, a semi-structured interview will be conducted with Jo Bronckers, being the expert of blockchain technology within construction industry in the Netherlands. The semi-structured interview will help eliminate the barriers in implementing life cycle assessment and material passports that can be resolved by blockchain technology. The obtained data will allow the author to analyse the linkage between each instrument and determine the feasibility of blockchain technology in enhancing the application of two instruments (LCA and Material Passport) to promote circularity inbuilt asset construction.

### Theoretical Framework

#### *The Transition of Circular Economy in Construction Industry*

The Dutch government has set the high ambitions to have established a circular economy in 2050, underlining the importance to execute the transition from a linear

‘take-make-dispose’ economy to circular economy (CE), by taking the built environment as one of the five priority sectors that contribute to economy of the Netherlands (Kabinet; Nelissen et al., 2018). Considered as the most material resources intensive, construction sector weighs substantial pressure on the natural environment. Construction industry plays a crucial role in transition towards a circular economy, due to its responsibility towards roughly 33% of greenhouse gas emissions, more than 40% of resources consumption, and around 40% of waste creation (Debacker et al., 2017; Ness & Xing, 2017; Pomponi & Moncaster, 2017).

Circular economy is becoming the solution to the problems caused by Linear“take-make-dispose” economy, namely, resource scarcity, social tension, market prices volatility, environmental degradation, and global warming. The Ellen MacArthur Foundation (EMF) defined circular economy as “one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles. This new economic model seeks to ultimately decouple global economic development from finite resource consumption”. Circular economy promotes growth in accordance with renewability, reuse, refurbishment, upgrade, repair, capacity sharing as well as decentralization. Consequently, firms with the profit-maximization mindset by concentrating on cost reduction as parameter of efficiency in supply chains, start to rethinking ways to produce products and render services to anticipate the future, and developing methods of minimizing the environmental impacts (Accenture, 2014).

Built environment sector possess the complexity as well as long lifetime of buildings that distinct this sector with others that are attempting to transitioning towards circular economy (Khasreen et al., 2009). Further, it is difficult to estimate the life-expectancy of buildings during its development, however, it may last longer than 50 years. Due to its longevity, buildings can experience numerous alterations and maintenance in terms of its physical appearance and function. Not to mention the environmental impacts of buildings that is dominated during its utilization stage, for example, energy consumption for operational purposes. Therefore, sustainable design and proper material selection are crucial in reducing the in-use environmental consequences. Construction industry is said to have many stakeholders, such as, the designer who is responsible to make decision about the final stage of building, is not responsible for the construction process as well as production of the building materials. Insufficient standardization within the building sector (Pomponi & Moncaster, 2017; Khasreen et al., 2009). Considering the long average life-expectancy of built assets, waste generation is expected to increase considerably within the upcoming decades. To respond to the waste generation crisis, the establishment of proper recycling method is necessary as a means of escalating the recycling rates. This initiative can be realized if the company has detailed information regarding the composition of construction waste. Hence, recyclability constantly changes according to time, it is on the hands of technological advancement and resource markets to support the transition from linear economy to circular economy (Kovacic et al., 2017).

An indefatigable attempt to advocate and project the continuous support in creating sustainable economy and growth by European Union is reflected on the

establishment of Horizon 2020 as learning playground for research and innovations that aim to drive development in Europe (Debacker et al., 2017). Buildings as Material Banks (BAMB) is part of Horizon 2020 project which focuses on the accelerating the value of building materials, enabling building materials to sustain their value, the outcome of this is waste minimization as well as reducing the dependency towards virgin resources within construction sector (European Union, 2020). BAMB introduces two solutions in responding to environmental and buildings shortage problems, such as, Material Passports is digital sets of data providing the characteristics of materials, and components in buildings, and Reversible Building Design Protocols is instruments to notify the designers and stakeholders about the reversibility of building designs where it can easily be deconstructed without harming the robustness of the constructed buildings (Debacker et al., 2017). Therefore, BAMB is encouraging value and functionality conservation of building materials which enables the reuse, decreasing the need for primary resources (van Sante, 2017; Debacker & Manshoven, 2016).

Evidenced by the mission of government of the Netherlands in becoming fully circular in 2050, emphasizing the urgency of built environment to radically transform into circular (Kabinet; Nelissen et al., 2018). In addition, the Building Holland 2018 held a forum themed circular economy that facilitated the entire key players involved in construction sector to have intellectual discussion, while exchanging ideas and tackling the existing problems professionally. Despite the momentum, specific knowledge and tools are required to address the problems (K. Adams et al., 2017; Geldermans & Jacobson, 2015; Leising et al., 2018; Pomponi & Moncaster, 2017; Stahel, 2016).

*Barriers in Implementing Circular Economy in Construction Industry*

Adam et al., (2017b) argued that the fragmented nature of building sector, an unproven business case, and lack of interest as well as awareness are becoming the primary challenges of the transition towards circular economy. Moreover, other authors have marked the material and data quality on materials may hamper the implementation of circular economy within the industry (Geldermans, 2016; Adam et al., 2017b).

| | |
|---|---|
| Financial | Measuring financial benefits of circular economy |
| | Financial profitability |
| Structural | Missing exchange of information |
| | Unclear responsibility distribution |
| Operational | Infrastructure/ Supply chain management |
| Attitudinal | Perception of sustainability |
| | Risk aversion |
| Technological | Product design |
| | Integration into production processes |

*Figure 1: Barriers in implementing circular economy in construction industry (Ritzén & Ölundh Sandström, 2017)*

Stahel (2016) stated that the concept of the circular economy as a holistic concept collides with the silo structures of our society, which recapitulates the built

environment sector. Various scholars view the journey towards circular economy can be very complex, proven by the multifaceted, as well as multidisciplinary nature of built environment supply chain (Adams et al., 2017a; Geldermans, 2016; Leising et al., 2018; Luscuere, 2016; Ploege et al., 2017). Thus, the involvement of entire supply chain and social relationships, not to mention the integration between stakeholders within supply chain where trust is fostered and seamless communication is facilitated, is crucial key towards the success of circular economy transition (Debacker et al., 2017; Geldermans & Jacobson, 2015; Leising et al., 2018).

Ritzén & Ölundh Sandström (2017) found the connection between components of obstacles hampering the implementation of circular economy, which clearly depicts the complexity of circular economy and the requirements for its transition. Figure 2 projects the five different types of barriers, namely, financial, structural, operational, attitudinal, and technological. Further, the relevant barrier for this research is the missing exchange of information, under structural barrier. The inadequate information and a material exchange system is obstructing the exchange of material between different players within the built environment sector (Winans et al., 2017; Kok, et al., 2013).

*Material Passports*

Civil society has taken the lead of change towards sustainability for the past 50 years, by forcing governments and business to trumpet their environmental activism. However, decades of environmental action are inadequate to save the planet, evidenced by only 9.1% of world's economy is circular, leaving to massive circularity gap (de Wit et al., 2018). The alarming statistics justify the urgency to close the circularity gap, aims to prevent social imbalances as well as further environmental deterioration (de Wit, et al., 2018).

The construction industry can be double edged sword in societal and environmental perspectives, it provides infrastructures, and employment opportunities, improving welfare of Dutch society. However, buildings and infrastructures in the Netherlands are composed of finite resources, which relies on 68% of imported raw materials (Ministry of Economic Affairs, 2016). The controversy arises when built environment sector contributes to 35% global carbon dioxide emissions, 40% total energy consumption, 30% water consumption, and 50% resource consumption, leaving to 36.4% of 2.5 billion waste generated in Europe (Eurostat, 2018; Transition Agenda, 2018). Digital technology is revolutionising sustainability, it can be used to respond to the waste problems within construction industry, assisting the transition towards circular economy (Pagoropoulos et al., 2017). Further, data is becoming the primary concern in using digital technology, enables to close different loops identified in circular economy, yet information gap is barely in-depth explained by auteurs (Geldermans, 2016; Adams et al., 2017b).

Material passports can solve the problem for missing information barrier, by actively tracking the value of materials and aimed to bring residual value to the market. Reliable set of information is required to obtain understanding the circular value potential of materials, making actions performed in lifecycle of a building, such as

use, maintenance, and demolish phases will affect the potential value of recovery, present use, and reuse (EPEA et al., 2016). Material passports will make information related to phases of lifecycle of a building to be more accessible (Luscuere, 2017). Material passports record the name, and the amounts of materials are used as components of a building, which information will be transferred to associated party, namely supplier, owner, and dismantler (van Sante, 2017). Bokeloh, Krayenhoff, Menkveld, Raes, Schotsman (2017) defined material passports as a digital dataset that identifies which materials are included in the used parts, where they are located, how to disassemble them, who the owner is, and what the quality is when they become available for reuse. Thus, value of these materials can be allocated for reuse, resale, and or / recycling.

*Material Passports and the Transition towards Circular Economy*

Linear model that is ingrained in our daily lives fail to meet a single target to stop destruction of nature. Circular economy can be used as an instrument of material scarcity prevention while reaching a low carbon and resource efficient economy, given that material management is said to be responsible to 67% of world's greenhouse gas emissions (de Wit et al., 2018). In addition, the information and material exchange tools that are operating within wider scale are needed in transition towards circular economy, which requires trusts of each party, rising costs of coordination, consequently decreasing the information quality (Damen, 2012).

To aid the success of circular economy transition, the importance of assembling high quality data on used materials, components, supply chain and properties is inevitable, creating the need of a systematic data quality control and registration, aimed to keep the data in timely manner. Material passports propose the ability to recover value from recovery and reuse of materials utilized in buildings for actors within supply chain. In addition, material passports induce the innovation towards product design, and material recovery systems, that enhancing the quality, value, and security of supply for materials, which can be reused for latter purposes, closing the loops, aligned with circular economy principle. Material passports support the circularity by creating a new value dimension based on the degree of recovery and reuse of materials as resources for other purposes, as benchmark in deciding the quality of materials (Hansen et al., 2012; EPEA et al., 2016). Therefore, material passports are a holding prime position towards the journey of a circular economy, in which information is widely distributed and accessible, resulting to waste reduction. The roles of material passports can be described as follows: (1) data gathering and material tracing; (2) enabling reverse logistics; (3) information sharing.

Damen (2012) analyzed that every party associated in the supply chain is required to provide information that is demanded for material passports, which should be constantly updated. The stored information should offer accessibility as well as confidentiality regarding the access to information. Material passports should provide uniformity, enabling the customization feature towards the stored information. Hence, material passports will make materials to be more traceable, and valuable due to the information it possesses, that can be interpreted to the residual value (Carra & Magdani, 2017; Debacker & Manshoven, 2016).

### *Barriers and Benefits of Material Passports*

Debacker & Manshoven (2016) conducted a research concerning the key barriers of transition towards circular economy in built environment, the following barriers as follows: 1) fragmented policy framework: from the EU to municipalities, generating disintegration; 2) conflicting energy and environment policy measures; 3) lack of standardization of qualitative data over the entire value chain of the building; 4) linear construction industry models; 5) intellectual property of material and product related data; 6) higher complexity of disassembly compared to demolition; 7) general perception that reversible design solutions entail high financial costs; 8) lack of certification and quality assurance for reclaimed products and recycled materials; 9) lack of a business model framework related to circular and reversible building; 10) reversible building is largely unknown to the general public.

Another research disclosed that confidentiality and accuracy concerns, reliability, incentive issues, and capital-intensive investment are hampering the implementation of material passports within construction firms, hence, well-integrated technology that is advocating the traceability, and transparency of relevant data is required in supporting the transition towards sustainable development (Damen, 2012; Mukhtar et al., 2013).

Debacker & Manshoven (2016) found that material passports can mitigate the environmental damage within construction sector, which is bolstering the reusing of materials. Material passports allow the users to share relevant information in the value network, enabling the seamless demolition phase due to the provision of valuable information concerning with building components, which show potential to be reused or remanufactured. Material passports can be instrument for players within construction industry to collaborate as well as communicate with each other. In addition, availability on the information regarding materials, and status in digital passport of a built asset grants suppliers' access to the information whether they are planning to reuse or buy back their products. Material passports are driving innovations by opening the door for new business models.

The material passport gives materials an identity and value. Materials inside a building is not useful when there is insufficient data regarding the location of materials, in which material passports are able to provide accessibility as well as transparency throughout the lifecycle of buildings. During these phases, the utilized materials within buildings can change depending on which phases, such as designing, building, maintaining, and adapting. Hence, traceability is crucial factor, as it enables the user to obtain timely information regarding potential value of materials (Luscuere, 2017).

### *Life Cycle Assessment Methodology (LCA)*

Being the globally emerging sector, construction industry is constantly changing due to the continuous growth of Dutch economy, not to mention the improving social and environmental measurements, putting the industry into the spotlight of sustainable development (du Plessis, 2001; Horn et al., 2018). Besides its aim to fulfil societal needs, and accommodate societal functions, construction sector inflicts negative

consequences from environmental perspective, consumes a significant amount of energy, creates solid waste, emits global greenhouse gas emissions, and pollutions, causes environmental deterioration, as well as resource scarcity (CICA, 2002; Melchert, 2007; Zimmermann et al., 2005). According to statistics the construction phase is responsible for 30% of energy losses, 40% of solid wastes creation, 40-50% of global output of global greenhouse gas emissions, causing acid rain (Transition Agenda, 2018; California Integrated Waste Management Board, 2000). Hence, acting towards sustainable construction industry to decrease carbon footprint in the Netherlands is indispensable to meet the stringent emission control targets of the Netherlands adopting circular economy by 2050.

Carbon footprint is the conversion result of emitted greenhouse gasses into equivalent carbon dioxide, abbreviated as CO2e, and is measured in units of weight, while other auteurs argued that carbon footprint is the measurement of CO2 emissions based on the materials or energy consumed (Li & Zheng, 2020; Liu et al., 2011; Yu et al., 2011). Despite the definition that vary, carbon footprint is considered as an effective tool in tracing greenhouse gases emissions by identifying the consequential impacts of products and services on environment, enabling robust measures of environmental degradation mitigation (Lockrey et al., 2018; Lim et al., 2016; Huang et al., 2018; Li et al., 2018). In present time, there are a few carbon footprint analyses conducted by the experts due to the complication of contributed materials and tools during construction stage, in which most of the research on carbon footprint is concentrating on the entire life cycle of the built assets, as well as its construction phase (Lippke et al., 2011; Trappey et al., 2013; El Hanandeh et al., 2017). Leading to a generalized estimation of the results, which accuracy, and completeness, as well as the comprehensiveness of considered factors still need to be enhanced (Roh et al., 2016). The most used model to calculate carbon footprint of buildings are inventory statistics and information model, allowing firms to gather as well as collect activity level data concerning with the consumed energy and associated carbon emission coefficient during the entire phases of construction process (Wu et al., 2016; Li & Liu, 2015).

LCA is a methodology that enables company to examine environmental and social concerns in relation with manufacturing a product or rendering a service, thereby equips firms with holistic view of potential trade-off in environmental and social impacts with a specific activity (Gonzales 2018; Linkov et al., 2017). The methodology evaluates the entire lifecycle of a product, a process, or a system from cradle to grave by accounting the extraction and processing of raw materials through production, transportation as well as distribution; use, reuse, maintenance, recycling where necessary, and disposal (Gonzales, 2018). ISO14040 is an overarching standard covers four analytical phases of LCA methodology, namely, defining the goal and scope, creating the life-cycle inventory, assessing the impact, and finally interpreting the results (Ortiz et al., 2009). Fava, Consoli, Dension, Dickson, Mohin & Dickson (1993) found that ISO14040 referred to LCA methodology as “A technique for assessing the environmental aspects and potential impacts associated with a product, by compiling an inventory of relevant inputs and outputs of a product system; evaluating the potential environmental impacts; and interpreting the results of the inventory analysis and impact assessment phases. LCA is often employed as an analytical decision support tool.” Therefore, LCA can

be useful tool to detect inefficiencies, in which can boost productivity and minimize environmental burden (CSIRO, 2018).

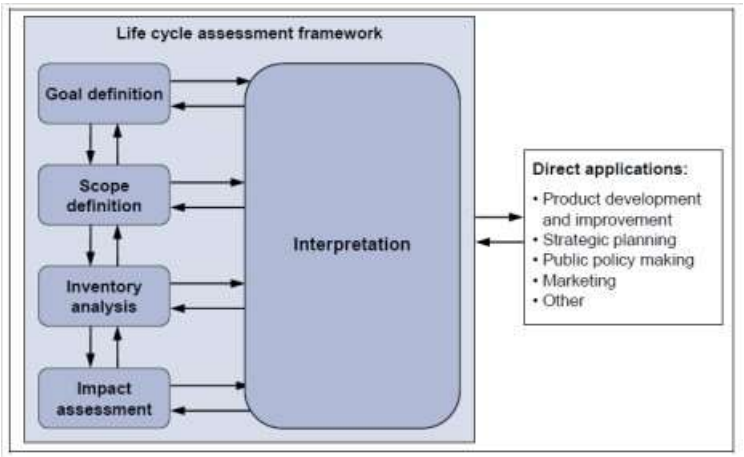



*Figure 2: Framework for Life Cycle Assessment (European Commission, Joint Research Centre, Institute for Environment and Sustainability, 2010 modified from ISO 14040:2006)*

*Step 1: Goal and scope definition*

The aim is to cultivate sustainability perspectives in the development of buildings as well as its processes, thereby a clear and detailed description of case study building is required. Ideally, the case study building should encompass the function and geographical characteristics of the building, including technical aspects. The system boundaries should be clearly determined whether the case study is covering the entire stages building life cycle, or one stage of building; the whole built asset, or one system; and impact categories should be defined (ISO, 2006). Further, LCA expert should take into account the functional unit, methodologies of impact assessment, data reqirements, assumptions, limitations, initial data quality requirements, type of critical review, and type of required report (ISO, 2006).

*Step 2: Inventory Analysis (LCI)*

This step comprises collecting, describing as well as verifying related data concerning with inputs, processes, emissions of the whole life cycle of a building. This step is considered as time and effort intensive process, buildings are considered as complex products, because of its long lifespan as well as complicated production process (Ortiz et al., 2009). Data collection process gathers data related to input-output of energy, and mass flow in respect of quantities and emissions to air, water, and land (Ortiz et al., 2009). The quality of inventory data that is determined by its accuracy and its compliance with the goal of the case study, has direct correlation with the quality-of-life cycle assessment (Ortiz et al., 2009). Another pivotal element that should be considered, such as data source, as it plays essential role to assure the reliability of the data, followed by acquisition methods, used verification procedures, not to mention data completeness, in relation with statistical figures, and representative sampling (Weidema, 1997).

*Step 3: Impact Assessment*

According to the international standard governing LCIA (Life Cycle Impact Assessment), ISO 14042 (2006) defined the objective of impact assessment is to examine the product system from an environmental point of view using impact

categories and category indicators connected with the LCI results, LCIA also provides information for the life-cycle interpretation phase. The step begins with selecting and defining environmental impact categories associated to buildings, namely global warming, ocean acidification, and toxicity (Ortiz et al., 2009). The next step is accompanied by classifying LCI results into impact categories, for instance, assigning carbon dioxide emissions as the cause of global warming, and modelling the impacts within impact categories through conversion factors, for example, modelling the potential impact of carbon dioxide and methane on global warming using Global Warming Potential (GWP) (International Standard Organization, 2006). The results should be evaluated and reported (SAIC, 2006), in which the impact categories are grouped according to its region, whether the event has regional or global impact (International Standard Organization, 2006).

*Step 4: Interpretation*

According to ISO14040 (2006), the aim of interpretation step is to "analyze the results, reach conclusions, explain limitations and provide recommendations based on the findings of the preceding phases of the LCA or LCI study and to report the results of the life-cycle interpretation in a transparent manner. Life-cycle interpretation is also intended to provide a readily understandable, complete, and consistent presentation of the results of an LCA or an LCI study, in accordance with the goal and scope definition of the study".

Research has shown that employing LCA will escalate raw material utilization as well as opting for renewable energy, hence improving production and business process efficiency (Bourtsalas et al. 2018), enhance waste management (Gong et al., 2018), boosting products' innovation through eco-friendly designs, strengthening brand position, and reinforcing customer loyalty (Ahmad et al., 2017; Chang et al., 2014). Firms that engage with consistent sustainable practices project the ability to create higher shareholder value and improve financial performance (Sroufe & Gopalakrishna-Remani, 2018). Therefore, LCA permits firms to evaluate the environmental consequences of each raw material used within construction process, and decide the best option for construction, that benefits the cost as well as environment.

### *Life Cycle Methodology and the Transition towards Circular Economy*

The building industry is facing major disruption and must rethink and reinvent its business strategies as well as construction practices to survive the new market mechanism based on circular economic model. The concept of circular economy that promotes extensive reuse, recycling, and recovery is gaining popularity in the Netherlands, and elsewhere, although linear economy dominates current global economy. Linear economy brings ecological and material disadvantages such as waste, pollution, and loss of material values, which have led to the conclusion that the world needs to implement circular economy.

LCA is seen as a tool to quantify the environmental impacts of the applied circular system, and circular economy is a philosophy governing society and the global economy, considered as the optimal model that can be applied in both micro level, and macro level by taking into consideration of finite resources, and environmental

damages the world creates, it defines economy that is entirely circular (Haupt & Zschokke, 2017). LCA is a suitable tool provides comprehensive assessment towards environmental impacts of products, which in this case is buildings, as well as its end-of-life maintenances (Haupt & Zschokke, 2017). In relation with circular economy, LCA should be used to assess the environmental performance of circular buildings, as well as the transition towards a higher level of circular economy implementation. Further, both circular economy and LCA has common goal, that is to lessen the environmental burden (Haupt & Zschokke, 2017).

LCA enables innovative and creative firms to obtain comprehensive understanding of the building's life cycle, in which will stimulate firms to rethink as well as reinvent their used materials, designs and implemented business model. Those who lead the transition towards circular economy are gaining the sustainable competitive advantage (Lacy & Rutqvist, 2015). In the industry moving towards circular economy and sustainable development, it is vital for construction firms to use robust assessment tool in assisting them in decision making process covering relevant environmental impacts as well as life cycle of buildings, aimed to improve performance and identify solutions. Thus, in overcoming the rising concerns of resource depletion and addressing environmental considerations, LCA can be applied to assist decision making in boosting sustainability within the construction industry.

*Barriers and Benefits of Life Cycle Assessment Methodology*

LCA encounters additional barriers for the following reasons: 1. Site-specific impacts: several local impacts need to be taken into consideration within the assessments, namely, the effects of constructed buildings on the surroundings, the ability to receive sunlight without obstruction from another buildings, stormwater flows, as well as safety of the neighborhood (Kohler & Moffatt, 2003). 2. Model complexity: wide variety of materials and products composing in one building creates a challenging data collection process, moreover, each of these materials and products possesses a divergent life cycle while interacting as part of an assembly, causing another barrier if firms wish to model the systems (Kohler & Moffatt, 2003; Erlandsson & Borg, 2003). Construction processes have major impact on environment which need to be considered as additional element of assessment framework (Guggemos & Horvath, 2006). 3. Scenario uncertainty and lack of transparency: the long useful lifespan of buildings will result to substantial uncertainties of LCA findings, decreasing the reliability of its results, further, LCA practitioners make assumptions for buildings operations and maintenance during the use stage, and other assumptions are made in the end-of-life stage, such as renovation, and demolition (Kohler & Moffatt, 2003). In addition, the lack of standardization used as the benchmark as well as highly diverse information that is being used in verifying social impact declaration causing expensive and laborious auditing process, causing lack of reliability, and struggle to be widely used in the industry (Mieras et al., 2019). Being the inherent limitation of LCA, lack of transparency of the assumptions and quality of the assessed data is reducing the credibility of LCA results, especially data collection in social LCA (Gonzales, 2018; Norris, 2014). 4. Indoor environments: design choices and indoor environment within the use stage may potentially affect the psychological well-being,

performance, as well as behavior of residents, this aspect needs to be included in LCA methodology as this aspect takes place during the longest stage and contribute to most total impact categories (Kohler & Moffatt, 2003).

The life cycle assessment (LCA) methodology regards the building processes and its environmental impacts from cradle-to-grave or cradle-to-cradle to identify as well as resolve problems that may arise (Yu et al., 2015). The methodology generates an estimation of carbon footprint of initial stage construction project, allowing firms to determine suitable design (Li & Zheng, 2020). LCA methodology assists firms to calculate the total carbon footprint of each phase of construction project by calculating the carbon emissions of materials and energy consumed (Li & Zheng, 2020). A research conducted by Teh, Khan, Corbitt, & Ong (2020) found that regardless the expensive cost and complicated process, (unmentioned company) still willingly to endure the process as part of innovative investment, as LCA assists the company to grasp comprehensive understanding of the carbon footprint and the flow of raw material and energy used in every stage of product's lifecycle, proving a longer-term view of improvements and changes that should be made. Although LCA methodology has been commonly practiced within building industry, there is a potential that should be integrated with circular economy concepts which will result to design for disassemble in LCA, potentially reduce the value of embodied carbon and energy in built environment *(*Eberhardt et al., 2019a, 2019b; Krause & Hafner, 2019). Further, LCA methodology will help to promote the advantages of reusing materials, and decreasing the usage of finite resources, consequently, reducing emissions, embodied carbon, and energy in construction project.

*Prominent Features of Blockchain in Construction Industry*

Blockchain has recently emerged as a disruptive technology that is advocating decentralization, transparency as well as accountability on the internet (Al Saqaf & Seidler, 2017). Blockchain comprises of salient features that offer improved uses and application within construction industry, have been further elaborated for the following: (1) **Decentralization,** blockchain is a decentralized system of peer-to-peer (P2P) network, causing the absence of central administrator or centralized data storage mechanism in the blockchain distributed ledger system (Walport, 2016). Accordingly, blockchain bolsters robustness while eliminating many-to-one traffic flows to prevent delays and single point of failure (Dorri et al., 2016). (2) **Anonymity**, blockchain protects users' privacy on transactions as people are given freedom to maintain their anonymity while employing third party to verify their identity (Sun et al., 2016). (3) **Security,** encryption mechanisms of blockchain involve public-key cryptography impede sensitive information from getting into the wrong hands, being misused, or forged, as well as maintain the validity of the information (Tapscott & Tapscott, 2017; Weernink et al., 2017). In addition, encryption enables to secure the privacy of private data, and digital signatures ascertain the authenticity, and integrity of the data (Lewis & Larson, 2016). (4) **Immutability**, the stored data on blockchain is protected by the peer-to-peer network of participants, leading to the inability to change or remove transactions (Dorri et al., 2016). Blockchain only permits its users to create and read the stored data, hence, creating ledger of permanent records of all transactions (Lewis et al., 2017; Atlam et al., 2018). (5) **Auditability,** the recorded and validated blockchain transactions contain timestamps information, allowing

users to trace prior records by accessing any node within the distributed blockchain network (Zheng et al., 2016). (6) **Transparency**, blockchain offers variety of transparency level as it can be controlled accordingly, for instance, in public blockchain, all the transactions and activity records are transparent and made visible to market participants (Lo et al., 2017; Yli-Huumo et al., 2016). (7) **Disintermediation,** due to the absence of third-party involvement, blockchain creates a secure environment that is trusted by market participants without the need for a central authority, consequently, reducing operational costs as well as boosting the sharing service efficiency (Lewis & Larson, 2016; Sun et al., 2016). (8) **Trust,** the need to use intermediary can be avoided when the trust among its users has been built, blockchain requires the permission of its users to become a part of the definitive blockchain (Lewis & Larson, 2016; Yli-Ojanper*ä et al., 2018).* (9) **Scalability,** blockchain possesses the capability to handle a growing number of workloads, and provide storage for its users (Bondi, 2000). However, blockchain is also facing scalability problems as well (Risius & Spohrer, 2017).

*Advantages of Implementing Blockchain in Construction Industry*

There are several factors that contribute to the adoption of blockchain in construction industry that have been identified for the following: (1) **Security**, blockchain provides integrity, non-repudiation and authentication through digital signatures, double-spending prevention, unaltered and indelible transactions (Mirzayi & Mehrzad, 2017). These features will be advantageous for construction industry, in which public-key cryptography based blockchain is suggested to be applied by the experts due to high number of approvals required, with numerous parties involved within a project (Perera et al., 2020). (2) **Anonymity**, blockchain facilitates personal information protection as personal details are neither stored not transmitted through the blockchain (Reid & Harrigan, 2013). Further, to conduct a transaction in blockchain, users can use their public key as account number without disclosing any personal data, and blockchain also generates private key that should be kept private (Reid & Harrigan 2013). Anonymity will be beneficial for construction industry, for instance, during the e-tendering process, allowing to bid anonymously (Perea et al., 2020). (3) **No single point of trust**, consensus mechanism enables authentication and validation of transactions on distributed ledger without the need to rely on central authority. Blockchain is viable option for building stakeholders as it is made trustworthy and secure by design, they are free to make secure payments and maintain good supply chains, minimizing risk in payment (Perera et al., 2020).
(4) **Fraud prevention**, blockchain is made to be practically immutable, making it impossible for any party to manipulate, replace, or falsify data stored and recorded on the blockchain (Miryazi & Mehrzad, 2017). Construction sector may eliminate the transaction cost collected by banks and financial institution as the intermediaries by applying blockchain that offers fraud resistant instrument, enabling to make direct payment between relevant participants, resulting to decreasing risk of delays or any issues, because the absence of human intervention (Perera et al., 2020). (5) **Non-physicality**, blockchain does not require physical instruments to carry out transactions namely, bank bills and bank vaults to protect cash, and it exchanges digital currency or tokens considered as medium of exchange between parties. Thereby, lowering administrative expenses of printing bills and security (Miryazi & Mehrzad, 2017).

### *Disadvantages of Implementing Blockchain in Construction Industry*

The potential of blockchain is great in solving real world problems, however, the technology is still at an early stage of development, it is important to note that blockchain also brings certain challenges and limitations in the context of blockchain adaptation, which have been identified: (1) **Awareness and understanding**, blockchain is popular but many people are not able to grasp the idea of blockchain and how it works due to lack of awareness as well as thorough understanding of the subject, resulting to the unwillingness to adopt blockchain (Mthethwa, 2016). (2) **Data privacy**, public blockchain has been criticized due to its lack of data privacy and confidentiality, as there is no restriction in participating (Lu & Xu, 2017). Additionally, anyone has the access to all information in blockchain and take part in consensus process (Lu & Xu, 2017). Private blockchain is created to address the privacy concerns in public blockchain (Lo et al., 2017). However, blockchain allows to store data out of the blockchain in protecting confidential information, limiting the data accessibility (Lo et al., 2017). Off-chain feature of blockchain is advantageous for construction sector, it is enabling sensitive information to be stored off-chain, preventing data privacy issues (Perera et al., 2020). (3) **Regulations and governance**, though blockchain is an emerging technology that needs to be regulated, many issues in regulations and governance in an attempt to adapt and embrace the new technology (Mthethwa, 2016). (4) **Data storage**, it is not the best idea to store big data on blockchain because of the large volumes as well as low velocity of data will delay the mining process (Lo et al., 2017). This limitation is an issue for construction industry as each project consists of large amount of data, thus, allowing limited amount of data that needs to be processed on blockchain (Perera et al., 2020). (5) **Scalability**, public blockchain is currently limited to process 3-20 transactions every second, VISA on the other hand, can currently handle approximately 1,700 transactions every second (Buterin, 2017; Mulli; 2018). This shows that blockchain has scalability problem and is not suitable for construction industry, yet consensus protocols such as PoS, DPoS, and PBFT can be a solution to this problem (Perera et al., 2020). (6) **Computing power**, blockchain has been known as energy-intensive technology, evidenced by the energy consumption of each bitcoin transaction is roughly 80,000 times more than credit card transaction (Puthal et al., 2018; Gatteschi et al., 2018). Proof of Work (PoW) mining requires massive computer power that could lead to energy waste to solve the mathematical problem (Lu & Xu, 2017). Hence, other consensus protocols have been introduced to overcome this problem, namely PoS, DPoS that is less energy intensive (Mthethwa, 2016).

### *Blockchain and Circular Economy*

Blockchain is being one of the emerging digital technologies has been harnessed to stimulate the seamless transition towards circular economy, though its development is immature (Pagoropoulos et al., 2017). Shojaei, Wang & Fenner (2019) defined blockchain is a chain of blocks of information that registers transactions, while a peer-to-peer (P2P) network of nodes is used to verify each transaction. Once a transaction is verified by the network, it is added to the blockchain and cannot be altered or tampered with. A transaction is requested; a block is created and represents the transaction; the block is broadcast to the P2P network; the network

validates the transaction; the verified block is added to the blockchain; and the transaction is complete. Blockchain aids the transformation towards circularity in some ways, namely, (1) The accessibility of relevant data related to materials and new approach of dealing with data are pivotal stimulant to close the loops. (2) A secure and integrated environment enabling the collaboration between parties involved. (3) Trust and transparency established by blockchain are inducing trustworthy data exchange between participants. (4) Being an advanced technology, blockchain has potential in tackling data issues (Bolier, 2019). Additionally, transparency as well as traceability of buildings and its components may contribute to the journey towards circular economy, resulting to whole life cycle cost, carbon emission estimates, and raw material verification (Shojaei et al., 2019). Therefore, blockchain technology may be a valuable tool in assisting construction industry towards the journey of circular economy due to its advantages such as reliability and accuracy assurance, not to mention its capability to grant access to detailed information regarding the source of products, embedded carbon, and energy footprint. Such technology makes the recorded transaction is verified, reliable and organized, eases its users to use the data for specific phase of building life cycle.

*Blockchain and Material Passports*

The world's population has quadrupled over the last 100 years, such large population will boost the demand for housing and infrastructure, however, there is currently lacking information about the provenance of building composition, as well as how and when the materials are manufactured, and used throughout their lifecycle (Abeyratne & Monfared, 2016). Research conducted by Abeyratne & Monfared (2016) found the potential of blockchain technology that uses distributed ledger to collect, store, and manage information regarding the materials throughout their lifecycle. The distributed network of information gives promises to provide a secure, shared transaction history, for each material combined with relevant information of each material. The network is decentralized, which allows firms to appraise the origin of building without governing authority and ownership over the entire supply chain (Kim & Laskowski, 2016). Additionally, integrating blockchain with another emerging technology such as internet of things (IoT) may be a response to the inadequate digital footprint of material, enabling firms to capture real time data about material and their environmental attribute, location as well as timestamps of material's journey across supply chain and lifecycle of a building, blockchain technology facilitates a secure platform and grants immutable access to supply chain data (Kim & Laskowski, 2016).

This emerging technology creates opportunities to give value-added to material passports. Being the industry with stringent measures, construction industry entails an evidence on track record of material production, transportation, handling as well as storage (Mondragon et al., 2018). Further, blockchain can store information on product manufacturing certifications, product quality, and resource provenance, while the feature of decentralization negates the potential of single-point failure, projects the resilience, ascertains the completeness of the information (Mondragon et al., 2018). Research have found that blockchain may help to enhance procurement purposes due to its capability to create accessibility of records to parties involved, assisting audits on quality issues (Wang et al., 2017). In

construction industry, the entire lifecycle of buildings can be digitalized and stored on blockchain (Swan, 2015). The salient features of blockchain may be beneficial in addressing the transparency and traceability issues in material passports, such as immutable transactions, user centric access control, decentralized data storage. Distributed data storage is giving its users the advantage of resilience towards attacks, manipulation, and counterfeiting, consequently enhancing transparency (Veuger, 2017; Shedroff, 2018). A distributed, consensus-based, permanent, and unalterable ledger assists construction firm to trace the sources and transformations of material throughout the lifecycle of a built asset. In addition, blockchain technology may generate a registry assist firms to identify as well as trace the material ownership across the supply chain, not to mention its ability to determine the validity and reliability of information sources within data systems through a distributed secure record of transactions (Morabito, 2017). This will help companies to assure data integrity, thereby providing a platform where data is reliable, accessible, compliant for interested party (IBM, 2017; Veuger, 2017).

Blockchain is identified as one of the tools that can help construction industry to eliminate lack of trust and insufficient information sharing technologies (Lau & Rowlinson, 2010). Blockchain, its working system negates the need for confrontational contractual relationships due to high level of transparency, security, and trust to relevant parties where decentralized storing and sharing information, that is peer-to-peer architecture (Veuger, 2017; Shojaei, 2019). Blockchain offers another opportunity for material passports, where the chain is demanded to be completed and verified that the database is accurate and avoiding unauthorized transactions from being completed (Shojaei, 2019). In addition, blockchain may enhance the maintenance requirements of a building, by analysing the life cycle performance of materials, resulting to the enhanced reusing as well as recyclability (Shojaei, 2019). Blockchain shows a great potential in improving sustainability in construction sector, it is proven that the technology possesses the ability to mitigate material waste, non-sustainable materials usage for instance, due to the demonstrated data traceability, immutability as well as transparency (Johansson & Nilsson, 2018). Blockchain technology can be used as a means of information verification in regards of materials, the energy source of manufacturer as well as energy used are recorded on the system, further, raw material transaction discloses information related to its origin, the amount is being transferred, forcing parties involved to be more cautious as every action is impacting the environment (Shojaei et al., 2019).

*Blockchain and Life Cycle Assessment Methodology*

The construction sector is known for stubborn resistance to a radical change as a result from the short-term relationship among stakeholders, poor information and data dissemination, apathy of learning, making the industry is among the least digitalized (Hultgren & Pajala, 2018; Barbosa et al., 2017). The lack of coherence and poor communication has decreased its productivity, impacted the sustainability of buildings, at the same time, the constructed buildings have profound effects on environment (Kibert, 2016). Multiple models have been developed to reduce environmental effects of construction; however, the issues arise due to the lack of transparency of sustainable measurements of a building and its components,

uncertainties in the data bases, insubstantial information of individual product, and unclear information regarding the supply chain route (Shojaei et al., 2019; Kosanović et al., 2018). Further, the absence of transparent and modernized tool to display detailed information regarding total embodied carbon and energy footprint of a building and its materials, as well as the limited scope of modelling barely cover one product (Shojaei et al., 2019). The lack of information hampers circular construction practices, such as conscious design and the purchase of raw materials where both designers and contractors need to consider its impact on building sustainability (Shojaei et al., 2019).

Various sustainability assessment methods have been proposed to collect and report information systematically and comprehensively, promised to aid decision making processes. LCA is becoming the commonly used method for evaluating the impacts of buildings and its materials on environment (Soust-Verdaguer et al., 2017). However, LCA has limitations that may lead to the skepticism about the results, such as lacks the comprehensiveness and the reliability, not to mention the large amount of information associated with built environment and its materials causing LCA to be a complex task, discourage construction firms to employ the methodology (Shojaei et al., 2019; Gantner et al., 2015). Hence, the construction sector is struggling to adapt and make substantial action towards the environmental dimension and sustainable development given the rising need for resources efficiency, along with the increasing building projects complexity, and increasing demand for quality and cost efficiency. Digital and disruptive technology such as blockchain may be able to solve above mentioned issues, evidenced by its ability to enhance sustainability and other industries, and potentially improving construction industry (Kouhizadeh and Sarkis, 2018). Data transparency, reliability and validity will create significant influence in decreasing information uncertainty concerning with the impact of decision making, at the same time, enhancing eco-design, eliminating trust issues within the sector due to the verification process (Shojaei et al., 2019). Thus, an integration with a decentralized comprehensive system creates transparent environment, may increase the inclusivity as well as reliability of LCA. Additionally, allowing the methodology to include the impact of energy sources utilized in material manufacturing within the assessment, as well as carbon footprint of a material, and finally, a building can be calculated (Shojaei et al., 2019).

Blockchain technology facilitates digital validation, coordination, and process simplifications, enabling firms to lean towards transparent and sustainable product-oriented activities; this emerging technology can be used to tackle the limitations of LCA, by enabling companies to distribute a permanent, indelible, and unalterable information in a timely-manner to satisfy the needs for information and assist the decision-making process of a fast-paced business environment, enabling companies to gather stakeholders in interconnected activities across value chain, increasing the data integrity, traceability, transparency as well as trust that has been the major concerns within the industry (Favi et al. 2018; Gonzales 2018; Mieras et al. 2019). The challenges of complexity and expensive cost of inventory analysis can be addressed by blockchain, as an instrument to create decentralized networks where a free and transparent database that needs minimal administrative structures is achievable, resulting to cost and time efficiency, making much planning for data collection is not a necessity (Herrara, 2017). In addition, research has shown the

capability of blockchain to improve the traceability of material provenance as well as its movement across the whole life cycle of a building; allowing to tag materials with relevant environmental information, namely, carbon accounting information and results of standardization, Environmental Product Declaration (EPD) (Sinistore, 2018). An integration of blockchain and LCA may enhance transparency and verifiability of stages in value chain; it can serve as accountability function from construction firms to society, that they are positively contributing to curbing carbon emissions.

**Analysis**

Clients become more conscious of environmental issues; circularity could be the pathway towards a more sustainable future. Given that construction industry is among the most polluting sector, major players within the sector need to rethink the way they do business; however, an industry-wide circular business model is viewed as lofty ambition as is a long way from grasping the full potentials of circular economy as well as realizing it. Prompt action of the transition towards circular economy is regarded as an imperative and an inevitability. Construction sector is entering digitalization where digital push is accelerating, advanced technology such as blockchain has been promoted to be the solution to every problem. Despite the prominence, blockchain is still an immature technology and is not the simplest way to solve problem in first sight. Blockchain technology is becoming an expensive solution where there is insufficient collaboration between involved parties and information available in the network, on the contrary, information is extremely valued within larger network where multiple stakeholders are aware of the need to collaborate and exchange information, causing blockchain to be an ideal solution. Blockchain is a complex answer, however the road to embracing the technology within construction sector may be difficult but not impossible. In the present day, the appetite of blockchain implementation and the added value of the technology will grow simultaneously because of the increasing number of adapters attempting to reap its benefits.

Construction industry and large investment are inextricably linked that requires trustful stakeholder relationship. Further, construction firms commonly employ third parties to conduct valuation, legal advising, notary service, assessment, and certification reports in order to build trust in the information that has been changed. Blockchain may be a valuable help to accelerate trust to digital information across the associated party when the information is structured in such a way that allowing multi-stakeholders to trust and utilize the information. It can be difficult to assess the value of implemented blockchain, as the adding value is invisible for construction companies. The value is added when firms are able to have a process that they can rely better on information while negating the necessity to hire intermediaries due to the salient features of blockchain technology such as immutability, transparency as well as traceability. Transparency is stated by different authors may be able to backfires as excessive transparency can lead to lack of privacy within construction industry. Nevertheless, transparency can be an instrument for construction firms to demonstrate their professionalism as well as accountability toward the involved party, reinforce data collaboration, prevent silos while reducing costs. Blockchain facilitates firms to safeguard confidential information, and to control the

transparency in addressing to given privacy concern, through access control mechanism, off-chain feature as well as private blockchain. These features enable companies to grant access to users with digital identities in specific level of information detail, depending on the role, purposes, and information types. Hence, transparency should be considered as an advantage to project the constructed buildings to associated party in a responsible manner.

Circular economy shifts the thinking of construction actors to design for disassembly and view building as a storage of materials in which buildings are purposely designed for material recovery, and value retention, making the buildings are at ease to be repaired, extending useful life, ascertaining materials to be recycled as well as reused. Timeliness and accuracy of the data are becoming crucial factors as a means to support circular economy transition, requires a system that can be dynamic during building lifecycle. The proposed system may vary from Building Information Modelling (BIM), 3D scans, and blockchain technology, in which depending on the scale of the project and other prerequisites. Thus, there is no one- size-fits-all approach, the ideal solution is structuring the data in material passports which will assist firms to practice a circular construction. Blockchain technology can only be a help when the involved party needs to rely on the trustful information, in which blockchain facilitates companies to trace and track details as well as specifications of materials. Blockchain technology alone does not solve the problem, however the solution lies on structuring the data.

Material passport is a tool to execute the ambition of circular construction practice, as it gives material an identity that helps construction industry to reimagine buildings as material banks enabling to retain the value of materials after the building becomes obsolete. Material passport benefits construction firms in supply chain, maintenance, renovation as well as demolition processes by actively tracking the value recovery potential allowing firms to understand the circular value of materials. The absence of material passport will hinder firms to optimize material value, leading to expensive as well as rise of carbon dioxide emission process. Material passport is considered as value-adding exercise by providing the ability to identify the components of buildings and its quality will create more value in the end of the process which not only increases the over-all building value, but also improves maintenance process. However, material passport requires large amount of information to be stored within every passport from which can be difficult to trace the update at every location, not to mention the frequent unavailability of requested data within material passport. Material passport requires a system that is able to demonstrate security, transparency, verifiability, immutability, and traceability as essential elements for determining the information quality. In addition, the system must also be dynamic over the course of the building's lifespan in which blockchain technology can add value to that.

Blockchain helps to create material passport including different sections of a building that stores information in centralized databases, such as woods in installations, and floors and roof in facades. The integration of blockchain technology with material passport is about information enrichment, it requires the chain to be completed and validated, ensuring the accuracy of database while mitigating unauthorized transactions. Blockchain could improve the building's maintenance requirements,

by assessing the life cycle performance of materials, resulting in higher frequency of reuse and recycle. Due to the prominent features of blockchain namely traceability, immutability, and transparency, the technology has immense potential to help construction industry in practicing circular construction by minimizing material waste, as well as the use of harmful materials. Blockchain can add-value to verify information associated with materials, energy source as well as consumption, which denotes raw material transaction in regards of its origin and the transported quantities, compelling concerned party to be more vigilant as any decision may be consequential to the environment.

LCA methodology strengthens proposition of circular economy by providing comprehensive understanding about the environmental footprint of built environment across its lifecycle. Circular economy model encourages to firms to execute design for disassembly in LCA, lowering the value of embodied carbon and energy in buildings. The methodology produces a carbon footprint forecast for an early-stage construction project, enabling companies to decide the appropriate design that aligns with sustainability. Further, it aids companies in calculating the carbon footprint of each stage of a construction project through computation of emitted carbon dioxide of materials and energy used, consequently construction companies will gain a thorough understanding of the carbon footprint and movement of raw materials and used resources in building lifecycle. LCA methodology implementation in construction industry contributes to stimulating materials reuse and to encouraging renewable resources usage, thereby decreasing emissions, embodied carbon, and energy usage in construction projects. LCA practice suffers from skepticism of LCA results, some limitations such as lacking comprehensiveness, reliability, as well as vast amount of information that needs to be stored and processed causing LCA methodology to be a challenging and expensive approach. Construction firms can make use of advanced technology such as blockchain to address the above-mentioned concerns. Blockchain helps construction actors create a single point of truth in the network, enabling users to validate whether they have the accurate information. It is impossible to alter or modify data once it has been verified and approved by the participating nodes. This, combined with the fact that every network participant has a copy of the ledger, indicates that the system is reinforcing social control. The technology is bolstering the input of good information. Blockchain can add-value in terms of managing and recording changes throughout building lifecycle. Therefore, an effective application of LCA methodology integrated with blockchain technology can also serve as a role of accountability to society, projecting sense of responsibility towards surrounding community members and environment by contributing to reduce carbon emissions.

## Conclusion

From greenhouse gases emission to construction materials pollution, construction sector in the Netherlands is dramatically affecting the environment in negative ways; if it continues unabated, it will add more weight to the damage experienced by future generation to live in the unhabitable earth. Experts have been attempting to identify effective strategies for mitigating the potential catastrophic impacts through the emergence of circular economy as a replacement of take-make-dispose industrial

model with the help of advanced technology, such as blockchain. This research contributes to the exploration of new way of thinking approach to hamper environmental degradation by determining the feasibility of blockchain to enhance the application of life cycle assessment methodology and material passport aiding the construction sector in the Netherlands towards circular economy.

Supported by the semi-structured interview and the literature review research found the advantages of blockchain technology application within the construction sector in the Netherlands as follows: Security, public-key cryptography based blockchain allows construction industry to deal with large number of approval requirements across associated parties, especially within megaprojects. Anonymity, e-tendering process that facilitates efficient sourcing suppliers can be enhanced by blockchain through the bidding anonymously. No single point of trust, establishing trustful partnership among construction stakeholders as well as maintaining good supply chain across the industry by offering secure payment. Fraud resistant, fraud resistant instrument aids direct payment method among construction players, reducing delays due to lack of human intervention., not to mention its ability to minimize transaction and administrative costs. Non-physicality, enabling construction actors to conduct transactions to safeguard cash and to exchange digital currency.

Despite benefits that blockchain offers in advancing construction industry in the Netherlands, there are limitations that should be considered by construction players in the Netherlands before normalizing the technology, namely: Awareness and understanding, lack of awareness as well as understanding of the technology creates perception among construction players that the cost of technology will not be able to exceed the benefits, hence discouraging the application. Data privacy, the transparency of blockchain has been criticized threatens data privacy of construction companies in the Netherlands, however this should not be taken into consideration, as transparency projects the professionalism of the industry. Further, it can be easily tackled by off-chain features, private blockchain as well as access control mechanism. Regulations and governance, the absence of laws regulating the technology. Data storage, large volume of construction data may result into delay in mining process, lowering the efficiency of the technology. Scalability, blockchain limits to process small amount of transaction every second, which is not suitable for construction industry that requires rapid data processing. Computing power, construction industry consists of numerous as well as continuous megaprojects that require rapid data processing, however, blockchain tends to be energy intensive, contributing to excessive power consumption that is bad for environment.

Blockchain technology is cultivating a collaborative environment where construction actors are actively cooperating to assert waste minimization and carbon emission monitoring to actualize the idea of circular economy within construction sector through the established tool such as material passport as well as life cycle assessment methodology. Evidenced in literature and semi-structure interview, the prominent features of blockchain that can add-value to material passports are immutable transaction, user centric access control, and distributed data storage that exhibits the immunity towards attacks and improves transparency within

construction industry in the Netherlands. A decentralized, immutable system such as blockchain, supported by the consensus mechanism aids construction companies to trace the origin as well as transformation of material throughout the building lifecycle. Blockchain may help construction companies in the Netherlands to identify and trace material ownership within supply chain, as well as to assess the validity and reliability the origin of information. These benefits of data integrity offered by blockchain is supporting the journey towards greener future, embracing the implementation of circular economy that promotes elimination of waste and continual recycling and material recovery by analysing the life cycle performance of each building component. The ambition on the wide-spread application of sustainable construction practices is becoming achievable, for instance waste minimization, continual usage of safe materials and meticulous decision making through data traceability, verifiability, immutability, and transparency.

A distributed ledger such as blockchain demonstrates the capability to create a transparent platform aimed at construction industry in the Netherlands, enhancing the inclusivity and reliability which is simultaneously decreasing the suspicion on LCA results. Being the salient features of blockchain, disintermediation may add value to established LCA methodology by flattening the administrative structures leading to cost-effective and time-efficient process, resulting to straightforward data collection planning. Transparency on the other hand, may add value to the increasing inclusivity of LCA results that covers the environmental consequences as well as advancing the calculation of consumed energy, and carbon footprint of each building component, and the whole building. Thereby, blockchain can be a help to LCA methodology in improving transparency, and verifiability within construction processes while taking imperative measure for combatting climate change by reducing emissions.

Blockchain is a valuable and disruptive technology that has big potential in accelerating circular construction practices in the Netherlands through the provision of salient features that can add value to the established material passport and LCA methodology. Blockchain is still considered as immature technology that has a long way to go before it is widely applied within construction industry in the Netherlands. The industry requires early adopters that are willing to experiment and take huge risk, later the technology will spread exponentially to early majority that are wary yet still enthusiastic to implement the technology, as well as late majority, knowing as the risk-averse and skeptical companies. One of the remaining challenges of blockchain implementation despite of the gained traction is finding enough early adopters.

**Policy**

Continued unabated pollution and greenhouse gas emissions will further increase changing climate patterns have become international business concern due to its significance in impacting value creation, financial performance, strategic positioning, market competitiveness, and long-term growth (Husted et al., 2015; Nakao et al. 2007; Epstein 2008; Porter & Kramer 2006). Economic growth of organizations is not only assessed by financial value, but also value creation for stakeholders; accordingly, organizations are encouraged to incorporate stakeholders'

expectations and sustainability into their business strategies to remain relevant in constantly evolving business environment (Elkington 1997; Laszlo, 2008). Chasing sustainability creates pathways towards the sea of opportunities for construction firms to remain competitive within the industry while provokes firms to adopt innovative approach that enables to project economic success without neglecting duty to operate in a way that protects the environment. However, to make a construction industry sustainable remains a challenge when the world operated according to linear economy.

Despite its success in bolstering economic growth and material wealth, as well as sustaining the life of world's population, the adoption of linear economy in construction sector fails to identify the urgency of recycling, reusing and effective waste management; consequently, resulting to resource scarcity while threatening the environment through excess waste and greenhouse gas emissions (Ellen MacArthur Foundation, 2013; Kok et al., 2013; Odijk & Bovene, 2014). Construction sector is regarded among most polluting sector to the environment, evidenced by releasing 35 percent of world's carbon dioxide emissions, consuming 40 percent of energy and 50 percent of resources; accounting to 36.4 percent of overall waste in Europe from which fraction of waste is being dumped in landfills (Transition Agenda, 2018). Construction sector is expected to balance quality of life of society with environment conservation, yet construction practices utterly downgrade environmental protection through profit maximization and cost minimization. Circular economy adaptation along with advanced technology integration, blockchain for instance, can be the answer to the dilemma of upsetting environmental balance within construction sector in the Netherlands by encouraging waste reduction and resource efficiency (Webster, 2017).

It is important for every actor in construction sector to take steps towards mitigating environmental burden, and to achieve sustainable development. The practice of sustainable construction can be done by using fewer finite materials, more sustainable materials, supported by the shift to renewable energies consumption, with the objective of reducing environmental damage (Sansom et al., 2013). Circular construction provides not only environmental benefits, but also create better shareholder value as well as enhance financial position (Sroufe & Gopalakrishna-Remani, 2018). In moving towards achieving circular economy and sustainable development, construction firms in the Netherlands need to utilize comprehensive and robust tools to manage performance and identify solutions corresponding to the relevant information of materials, life cycle of buildings as well as its environmental impacts from which blockchain can help the existing implementation of material passport and LCA methodology aiding the decision-making process (Teh et al., 2020; Hauschild et al., 2018; Hansen et al., 2012). Blockchain can enhance the implementation of material passports enabling construction firms to examine as well as evaluate the life cycle performance of materials consisting in buildings which expands the opportunities to reuse and recycle building materials, once the buildings are demolished, or disassembled (Shojaei, 2019). In addition, salient features of blockchain such as decentralization, immutability, as well as transparency along with implemented material passport can prevent material waste, and non-sustainable material usage (Johansson & Nilsson, 2018). Blockchain can help LCA methodology in ensuring transparency of the relevant building information

that improves the inclusivity and reliability of LCA results through the comprehensive information regarding the impact of energy used, material carbon footprint, as well as whole-building (Shojaei et al., 2019).

The adoption of material passport, LCA methodology and blockchain technology within construction industry in the Netherlands is still in its infancy. This research contributes to construction field by outlining the advantages and disadvantages of blockchain implementation, and which major features of blockchain technology could add value to the existing material passport and LCA within construction industry in The Netherlands. Therefore, the result of this research will be useful to construction firms in The Netherlands that are interested to take part into the journey towards circular economy by assisting them to contribute to a sustainable future through monitoring carbon footprint and reducing material waste while keeping up with the incredibly popular technology, blockchain. The results highlighted aspects of current implementation of blockchain technology, material passport as well as LCA that could be improved, and a recommendation for business implementation as follows:

- Exploration, to achieve widespread adoption of blockchain technology in mainstream market, construction sector in the Netherlands requires firms being early adopters that are willing to take risks and bold actions in exploring and adopting the technology while aligning the capabilities of blockchain with strategic opportunities to outperform competitors and to assist the journey towards a greener future. Further, construction firms need to conduct extensive research regarding the application of blockchain technology in order to have a comprehensive understanding of the technology, avoiding technology traps that give more harm than good.
- Collaboration, Construction actors are currently experimenting with the application of blockchain technology, material passport, and LCA methodology. Construction sector deals with large volumes of heterogeneous data which is expected to increase exponentially as technology adaptation as well as large supply chain. Further, the large amount of data that needs to be processed has always seen as a barrier in technology adaptation, as a result it is likely that parties within the sector will be secrecy towards their own data, building a wall of separation between important actor that restricts them to interact with one another. Such a situation opposes the concept of blockchain technology, material passport, and LCA methodology. To provide trustful environment within construction sector and to achieve success implementation of blockchain technology, all stakeholders need to cooperate on a wider scale.

## References

Abeyratne, S. A., & Monfared, R. P. (2016). Blockchain ready manufacturing supply chain using distributed ledger. *International Journal of Research in Engineering and Technology*, *5*(9), 1-10.

Accenture. (2014). Circular Advantage: Innovative Business Models and Technologies to Create Value in a World without Limits to Growth. Accenture.

Adams, K. T., Osmani, M., Thorpe, T., & Thornback, J. (2017, February). Circular economy in construction: current awareness, challenges and enablers. In *Proceedings of*

*the Institution of Civil Engineers-Waste and Resource Management* (Vol. 170, No. 1, pp. 15-24). Thomas Telford Ltd.

Adams, K., Osmani, M., Thorpe, T., & Hobbs, G. (2017, June). The role of the client to enable circular economy in the building sector. IN: Di Maio, F. ...et al. In *Proceedings of the International HISER Conference on Advances in Recycling and Management of Construction and Demolition Waste, Delft, The Netherlands, 21st* (pp. 118-121). TU Delft Library.

Agreement, P. (2015, December). Paris agreement. In *Report of the Conference of the Parties to the United Nations Framework Convention on Climate Change (21st Session, 2015: Paris). Retrived December* (Vol. 4, p. 2017).

Ahmed, S., & Ten Broek, N. (2017). Blockchain could boost food security. *Nature*, *550*(7674), 43-43.

Al-Saqaf, W., & Seidler, N. (2017). Blockchain technology for social impact: opportunities and challenges ahead. *Journal of Cyber Policy*, *2*(3), 338-354.

Atlam, H. F., Alenezi, A., Alassafi, M. O., & Wills, G. (2018). Blockchain with internet of things: Benefits, challenges, and future directions. *International Journal of Intelligent Systems and Applications*, *10*(6), 40-48.

Bokeloh, P., Krayenhoff, A., Menkveld, N., Raes, J., & Schotsman, H. (2017). Prinsjesdagrapport 2017, De Cirkel is rond: De circulaire toekomst van Nederland. Amsterdam: ABN AMRO.

Bolier, M. (2018). Blockchain technology to accelerate the transition towards a circular economy. *Delft University of Technology*.

Bondi, A. B. (2000, September). Characteristics of scalability and their impact on performance. In *Proceedings of the 2nd international workshop on Software and performance* (pp. 195-203).

Bourtsalas, A. T., Zhang, J., Castaldi, M. J., & Themelis, N. J. (2018). Use of non-recycled plastics and paper as alternative fuel in cement production. *Journal of cleaner production*, *181*, 8-16.

Buterin, V. (2016). Privacy on the Blockchain. *Ethereum Blog*.

California Integrated Waste Management Board. Designing With Vision: A Technical Manual for Material Choices in Sustainable Construction. California Environmental Protection Agency: California, CA, USA, 2000.

Carra, G., & Magdani, N. (2017). Circular Business Models for the Built Environment. Ellen MacArthur Foundation, ARUP, BAM.

Chang, D., Lee, C. K. M., & Chen, C. H. (2014). Review of life cycle assessment towards sustainable product development. *Journal of Cleaner Production*, *83*, 48-60.

Coalition, D. B. (2017). Actieagenda Nationale Blockchain Coalitie. *White Paper (March 2017). Retrieved on October*, *31*, 2018.

Consoli, F., Allen, D., Boustead, I., Fava, J., Franklin, W., Jensen, A. A., ....& Vigon, B. (1993, March). Guidelines for life-cycle assessment: a “Code of practice”. Society of Environmental Toxicology and Chemistry (SETAC). In *SETAC Workshop, Sesimbra, Portugal* (Vol. 31).

Damen, M. A. (2012). A resources passport for a circular economy (master thesis).

De Wit, M., Hoogzaad, J., Ramkumar, S., Friedl, H., & Douma, A. (2018). The Circularity Gap Report: An analysis of the circular state of the global economy. *Circle Economy: Amsterdam, The Netherlands*.

Debacker, W., Manshoven, S., & Denis, F. (2016). D1 Synthesis of the state-of-the-art: key barriers and opportunities for materials passports and reversible building design in the current system.

Debacker, W., Manshoven, S., Peters, M., Ribeiro, A., & De Weerdt, Y. (2017, June). Circular economy and design for change within the built environment: preparing the transition. In *International HISER Conference on Advances in Recycling and Management of Construction and Demolition Waste* (pp. 114-117).

Dorri, A., Kanhere, S. S., & Jurdak, R. (2016). Blockchain in internet of things: challenges and solutions. *arXiv preprint arXiv:1608.05187*.

Du Plessis, C. (2001). Agenda 21 for sustainable construction in developing countries. *CSIR Report BOU E*, *204*, 2-5.

Eberhardt, L. C. M., Birgisdóttir, H., & Birkved, M. (2019). Life cycle assessment of a Danish office building designed for disassembly. *Building Research & Information*, *47*(6), 666-680.

Eberhardt, L., Birgisdottir, H., & Birkved, M. (2019). Comparing life cycle assessment modelling of linear vs. circular building components. In *IOP Conference Series: Earth and Environmental Science* (Vol. 225, No. 1, p. 012039). IOP Publishing.

El Hanandeh, A., Gilbert, B., & Bailleres, H. (2017). A comparative life cycle assessment (LCA) of alternative material for Australian building construction. In *MATEC Web of Conferences* (Vol. 120, p. 02013). EDP Sciences.

Elkington, J. (1997). Cannibals with forks. *The triple bottom line of 21st century*, *73*.

EPEA, IBM and SundaHus (2016), Deliverable 4 – Materials Passports User Requirements Report, within the framework of H2020 BAMB project (grant agreement No-642384), sent to EC in June 2016, confidential, 102p

Epstein MJ (2008) Making sustainability work: best practices in managing and measuring corporate social, environmental and economic impacts. Routledge, London

Erlandsson, M., & Borg, M. (2003). Generic LCA-methodology applicable for buildings, constructions and operation services—today practice and development needs. *Building and environment*, *38*(7), 919-938.

Evliya, H. (2007). Energy Storage for Sustainable Future—A Solution to Global Warming. In *Thermal Energy Storage for Sustainable Energy Consumption* (pp. 87-99). Springer, Dordrecht.

Fauzi, R. T., Lavoie, P., Sorelli, L., Heidari, M. D., & Amor, B. (2019). Exploring the current challenges and opportunities of life cycle sustainability assessment. *Sustainability*, *11*(3), 636.

Favi, C., Germani, M., Mandolini, M., & Marconi, M. (2018). Implementation of a software platform to support an eco-design methodology within a manufacturing firm. *International Journal of Sustainable Engineering*, *11*(2), 79-96.

Flammer, C. (2013). Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal*, *56*(3), 758-781.

Gantner, J., Wittstock, B., Lenz, K., Fischer, M., Sedlbauer, K., Anderson, J., ... & Sjöström, C. (2015). *EeBGuide guidance document part B: Buildings. Operational guidance for life cycle assessment studies of the energy efficient building initiative*. Fraunhofer Verlag.

Gatteschi, V., Lamberti, F., Demartini, C., Pranteda, C., & Santamaria, V. (2018). To blockchain or not to blockchain: That is the question. *IT Professional*, *20*(2), 62-74.

Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy–A new sustainability paradigm?. *Journal of cleaner production*, *143*, 757-768.

Geldermans, B., & Jacobson, L. R. (2015). Circular material & product flows in buildings. Retrieved from Delft, the Netherlands:

Geldermans, R. J. (2016). Design for change and circularity–accommodating circular material & product flows in construction. *Energy Procedia*, *96*, 301-311.

Gong, Y., Zhou, X., Ma, X., & Chen, J. (2018). Sustainable removal of formaldehyde using controllable water hyacinth. *Journal of Cleaner Production*, *181*, 1-7.

Gonzales CJ (2018) Life Cycle Assessment. In: Anastas PT, Constable DJ, Gonzales CJ (eds) Green metrics. Wiley, Hoboken, pp 95–118

Hansen, K., Braungart, M., & Mulhall, D. (2012). Resource Re-Pletion. Role of Buildings. Introducing Nutrient Certificates AKA Materials Passports As A Counterpart To Emissions Trading Schemes. *The Springer Encyclopedia of Sustainability Science and Technology*.

Haupt, M., & Zschokke, M. (2017). How can LCA support the circular economy?—63rd discussion forum on life cycle assessment, Zurich, Switzerland, November 30, 2016. *The International Journal of Life Cycle Assessment*, *22*(5), 832-837.

Herrara R (2017) Data quality and availability for S LCA. https://s3engineering.org/assets/seminar_summer2017/12_data_quality_and_availability_for_slca.pdf

Horn, R., Burr, M., Fröhlich, D., Gschwander, S., Held, M., Lindner, J. P., ... & Schossig, P. (2018). Life cycle assessment of innovative materials for thermal energy storage in buildings. *Procedia CIRP*, *69*, 206-211.

Huang, L., Liu, Y., Krigsvoll, G., & Johansen, F. (2018). Life cycle assessment and life cycle cost of university dormitories in the southeast China: Case study of the university town of Fuzhou. *Journal of Cleaner Production*, *173*, 151-159.

Hultgren, M., & Pajala, F. (2018). Blockchain technology in construction industry: Transparency and traceability in supply chain.

Husted, B. W., Allen, D. B., & Kock, N. (2015). Value creation through social strategy. *Business & Society*, *54*(2), 147-186.

IBM. (2017). The Benefits of Blockchain to Supply Chain Networks. IBM.

International Standard Organization. (2006). *ISO 14040: Environmental Management-Life Cycle Assessment-Principles and Framework*.

Junnila, S., Horvath, A., & Guggemos, A. A. (2006). Life-cycle assessment of office buildings in Europe and the United States. *Journal of infrastructure systems*, *12*(1), 10-17.

Khasreen, M. M., Banfill, P. F., & Menzies, G. F. (2009). Life-cycle assessment and the environmental impact of buildings: a review. *Sustainability*, *1*(3), 674-701.

Kibert, C. J. (2016). *Sustainable construction: green building design and delivery*. John Wiley & Sons.

Kim, H., & Laskowski, M. (2016). Towards an Ontology-Driven Blockchain Design for Supply Chain Provenance.

Kohler, N., & Moffatt, S. (2003). Life-cycle analysis of the built environment. *Industry and environment*, *26*(2), 17-21.

Kok, L., Wurpel, G., & Ten Wolde, A. (2013). Unleashing the power of the circular economy. *Report by IMSA Amsterdam for Circle Economy*.

Kok, L., Wurpel, G., & Ten Wolde, A. (2013). Unleashing the power of the circular economy.

Kosanović, S., Klein, T., Konstantinou, T., Radivojević, A., & Hildebrand, L. (2018). *Sustainable and resilient building design: approaches, methods and tools*. TU Delft Open.

Kouhizadeh, M., & Sarkis, J. (2018). Blockchain practices, potentials, and perspectives in greening supply chains. *Sustainability*, *10*(10), 3652.

Kovacic, I., Honic, M., & Rechberger, H. (2017). BIM Based Material Building Pass as Tool for Enhancement of Circular Economy in AEC Industry. Vienna: Vienna University of Technology.

Lacy, P., & Rutqvist, J. (2015). The Roots of the Circular Economy. In *Waste to Wealth* (pp. 19-23). Palgrave Macmillan, London.

Laszlo, C. (2008). *Sustainable value: How the world's leading companies are doing well by doing good*. Stanford University Press.

Leising, E., Quist, J., & Bocken, N. (2018). Circular Economy in the building sector: Three cases and a collaboration tool. *Journal of Cleaner production*, *176*, 976-989.

Lewis, A., Larsen, M., & Goh, C. Y. (2016). Understanding blockchain technology and what it means for your business. *Asian Insights Office DBS Group Research Google Scholar*.

Lewis, R., McPartland, J., & Ranjan, R. (2017). Blockchain and financial market innovation. *Economic Perspectives*, *41*(7), 1-17.

Li, X. J., & Zheng, Y. D. (2020). Using LCA to research carbon footprint for precast concrete piles during the building construction stage: A China study. *Journal of Cleaner Production*, *245*, 118754.

Li, Y., Huang, Y., Ye, Q., Zhang, W., Meng, F., & Zhang, S. (2018). Multi-objective optimization integrated with life cycle assessment for rainwater harvesting systems. *Journal of hydrology*, *558*, 659-666.

Lim, T. K., Gwak, H. S., Kim, B. S., & Lee, D. E. (2016). Integrated carbon emission estimation method for construction operation and project scheduling. *KSCE Journal of Civil Engineering*, *20*(4), 1211-1220.

Linkov, I., Trump, B. D., Wender, B. A., Seager, T. P., Kennedy, A. J., & Keisler, J. M. (2017). Integrate life-cycle assessment and risk analysis results, not methods. *Nature Nanotechnology*, *12*(8), 740-743.

Linkov, I., Trump, B. D., Wender, B. A., Seager, T. P., Kennedy, A. J., & Keisler, J. M. (2017). Integrate life-cycle assessment and risk analysis results, not methods. *Nature Nanotechnology*, *12*(8), 740-743.

Lippke, B., Gustafson, R., Venditti, R., Volk, T., Oneil, E., Johnson, L., ... & Steele, P. (2011). Sustainable biofuel contributions to carbon mitigation and energy independence. *Forests*, *2*(4), 861-874.

Liu, M., Li, Y. Q., & Zhan, X. (2011). Generic model for energy carbon emission of building materials. In *Advanced Materials Research* (Vol. 168, pp. 365-368). Trans Tech Publications Ltd.

Lo, S. K., Xu, X., Chiam, Y. K., & Lu, Q. (2017, November). Evaluating suitability of applying blockchain. In *2017 22nd International Conference on Engineering of Complex Computer Systems (ICECCS)* (pp. 158-161). IEEE.

Lockrey, S., Verghese, K., Crossin, E., & Nguyen, H. (2018). Concrete recycling life cycle flows and performance from construction and demolition waste in Hanoi. *Journal of cleaner production*, *179*, 593-604.

Lotfi, Z., Mukhtar, M., Sahran, S., & Taei Zadeh, A. (2013, June). Information sharing in supply chain management. In *The 4th International Conference on Electrical Engineering and Informatics*.

Lu, Q., & Xu, X. (2017). Adaptable blockchain-based systems: A case study for product traceability. *Ieee Software*, *34*(6), 21-27.

Luscuere, L. M. (2017, February). Materials Passports: Optimising value recovery from materials. In *Proceedings of the Institution of Civil Engineers-Waste and Resource Management* (Vol. 170, No. 1, pp. 25-28). Thomas Telford Ltd.

MacArthur, E. (2013). Towards the circular economy. *Journal of Industrial Ecology*, *2*, 23-44.

Melchert, L. (2007). The Dutch sustainable building policy: A model for developing countries?. *Building and Environment*, *42*(2), 893-901.

Mgbemene, C. A., Nnaji, C. C., & Nwozor, C. (2016). Industrialization and its backlash: focus on climate change and its consequences. *Journal of Environmental Science and Technology*, *9*(4), 301-316.

Miah, J. H., Griffiths, A., McNeill, R., Halvorson, S., Schenker, U., Espinoza-Orias, N., ... & Sadhukhan, J. (2018). A framework for increasing the availability of life cycle inventory data based on the role of multinational companies. *The international journal of life cycle assessment*, *23*(9), 1744-1760.

Mieras, E., Gaasbeek, A., & Kan, D. (2019). How to seize the opportunities of new technologies in life cycle analysis data collection: a case study of the Dutch Dairy Farming Sector. *Challenges*, *10*(1), 8.

Ministry of Economic Affairs. (2016). Nederland circulair in 2050: Rijksbreed programma circulaire economie. Den Haag: Ministry of Economic Affairs.

Mirzayi, S., & Mehrzad, M. (2017, October). Bitcoin, an SWOT analysis. In *2017 7th International Conference on Computer and Knowledge Engineering (ICCKE)* (pp. 205-210). IEEE.

Mondragon, A. E. C., Mondragon, C. E. C., & Coronado, E. S. (2018, April). Exploring the applicability of blockchain technology to enhance manufacturing supply chains in the

composite materials industry. In *2018 IEEE International conference on applied system invention (ICASI)* (pp. 1300-1303). IEEE.

Morabito, V. (2017). Business innovation through blockchain. *Cham: Springer International Publishing*.

Mthethwa, S. (2016). The analysis of the blockchain technology and challenges hampering its adoption. *World Academy of Science, Engineering and Technology, International Science Index, Computer and Information Engineering*, *10*(12), 1937-1948.

Nakao, Y., Amano, A., Matsumura, K., Genba, K., & Nakano, M. (2007). Relationship between environmental performance and financial performance: an empirical analysis of Japanese corporations. *Business Strategy and the Environment*, *16*(2), 106-118.

Nelissen, E., Van de Griendt, B., Van Oppen, C., Pallada, I., Wiedenhoff, J., Van der Waal, J., & Bögl, T. (2018). Transitie-agenda circulaire bouweconomie.

Ness, D. A., & Xing, K. (2017). Toward a Resource-Efficient Built Environment: A Literature Review and Conceptual Model. *Journal of Industrial Ecology*, *21*(3), 572-592.

Norris, C. B. (2014). Data for social LCA.

Oreskes, N. (2004). The scientific consensus on climate change. *Science*, *306*(5702), 1686-1686.

Ortiz, O., Castells, F., & Sonnemann, G. (2009). Sustainability in the construction industry: A review of recent developments based on LCA. *Construction and building materials*, *23*(1), 28-39.

Pagoropoulos, A., Pigosso, D. C., & McAloone, T. C. (2017). The emergent role of digital technologies in the Circular Economy: A review. *Procedia CIRP*, *64*, 19-24.

Pagoropoulos, A., Pigosso, D. C., & McAloone, T. C. (2017). The emergent role of digital technologies in the Circular Economy: A review. *Procedia CIRP*, *64*, 19-24.

Perera, S., Nanayakkara, S., Rodrigo, M. N. N., Senaratne, S., & Weinand, R. (2020). Blockchain technology: Is it hype or real in the construction industry?. *Journal of Industrial Information Integration*, *17*, 100125.

Plenio, J. (2020). Carbon dioxide levels hit new record; COVID impact 'a tiny blip', WMO says UN News. Retrieved December 25, 2020, from https://news.un.org/en/story/2020/11/1078322

Ploeger, H. D., Prins, M., Straub, A., & van den Brink, R. (2017). Circular economy and real estate: alternatives for operational lease. *WELCOME TO DELEGATES IRC 2017*, 164.

Pomponi, F., & Moncaster, A. (2017). Circular economy for the built environment: A research framework. *Journal of cleaner production*, *143*, 710-718.

Pomponi, F., & Moncaster, A. (2017). Circular economy for the built environment: A research framework. *Journal of cleaner production*, *143*, 710-718.

Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard business review*, *84*(12), 78-92.

Programme, S. P. E. (2012). Pacific Environment Climate and Change Outlook.

Puthal, D., Malik, N., Mohanty, S. P., Kougianos, E., & Das, G. (2018). Everything you wanted to know about the blockchain: Its promise, components, processes, and problems. *IEEE Consumer Electronics Magazine*, *7*(4), 6-14.

Reid, F. & Harrigan, M. (2013). An analysis of anonymity in the bitcoin system. In *Security and privacy in social networks* (pp. 197-223). Springer, New York, NY.

Risius, M., & Spohrer, K. (2017). A blockchain research framework. Bus Inf Syst Eng 59: 385–409.

Ritzén, S., & Sandström, G.Ö. (2017). Barriers to the Circular Economy–integration of perspectives and domains. *Procedia Cirp*, *64*, 7-12.

Roh, S., Tae, S. & Shin, S. (2014). Development of building materials embodied greenhouse gases assessment criteria and system (BEGAS) in the newly revised Korea Green Building Certification System (G-SEED). *Renewable and Sustainable Energy Reviews*, *35*, 410-421.

Rosenbaum, R.K., Hauschild, M.Z., Boulay, A.M., Fantke,P., Laurent, A., Núñez, M. & Vieira, M. (2018). Life cycle impact assessment. In *Life cycle assessment* (pp. 167-270). Springer, Cham.

Scientific Applications International Corporation (SAIC), & Curran, M. A. (2006). Life-cycle assessment: principles and practice.

Shedroff, N. (2018). Self-managing real estate. *Computer*, *51*(1).

Shojaei, A. (2019). Exploring applications of blockchain technology in the construction industry. *Edited by Didem Ozevin, Hossein Ataei, Mehdi Modares, Asli Pelin Gurgun, Siamak Yazdani, and Amarjit Singh. Proceedings of International Structural Engineering and Construction*, *6*.

Shojaei, A., Wang, J., & Fenner, A. (2019). Exploring the feasibility of blockchain technology as an infrastructure for improving built asset sustainability. *Built Environment Project and Asset Management*.

Siebke, I., Steuri, N., Furtwängler, A., Ramstein, M., Arenz, G., Hafner, A., ... & Lösch, S. (2019). Who lived on the Swiss Plateau around 3300 BCE? Analyses of commingled human skeletal remains from the dolmen of Oberbipp. *International journal of osteoarchaeology*, *29*(5), 786-796.

Sinistore J (2018) Driving sustainability through life cycle assessment, renewable energy and blockchain. https://www.wsp.com/ en-AU/insights/blockchain-driving-sustainability. Accessed 23 March 2021

Solomon, S., Plattner, G.K., Knutti, R., & Friedlingstein, P. (2009). Irreversible climate change due to carbon dioxide emissions. *Proceedings of the national academy of sciences*, *106*(6), 1704-1709.

Soust-Verdaguer, B., Llatas, C., & García-Martínez, A. (2017). Critical review of bim-based LCA method to buildings. *Energy and Buildings*, *136*, 110-120.

Sroufe, R., & Gopalakrishna-Remani, V. (2019). Management, social sustainability, reputation, and financial performance relationships: An empirical examination of US firms. *Organization & Environment*, *32*(3), 331-362.

Sroufe, R., & Gopalakrishna-Remani, V. (2019). Management, social sustainability, reputation, and financial performance relationships: An empirical examination of US firms. *Organization & Environment*, *32*(3), 331-362.

Stahel, W.R. (2016). The circular economy. *Nature News*, *531*(7595), 435.

Sun, J., Yan, J., & Zhang, K. Z. (2016). Blockchain-based sharing services: What blockchain technology can contribute to smart cities. *Financial Innovation*, *2*(1), 1-9.

Swan, M. (2015). *Blockchain: Blueprint for a new economy*. " O'Reilly Media, Inc.".

Tapscott, D. & Tapscott, A. (2017). How blockchain will change organizations. *MIT Sloan Management Review*, *58*(2), 10.

Teh, D., Khan, T., Corbitt, B., & Ong, C. E. (2020). Sustainability strategy and blockchain-enabled life cycle assessment: a focus on materials industry. *Environment Systems and Decisions*, *40*(4), 605-622.

Transition Agenda Circulair Economy (2018)

Trappey, A.J., Trappey, C.V., Liu, P.H., Hsiao, C.T., Ou, J.J., & Chen, K.W. (2013). Location quotient EIO-LCA method for carbon emission analysis. In *Concurrent Engineering Approaches for Sustainable Product Development in a Multi-Disciplinary Environment* (pp. 367-377). Springer, London.

Ummenhofer, C.C., & Meehl, G. A. (2017). Extreme weather and climate events with ecological relevance: a review. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *372*(1723), 20160135.

United Nations, Department of Economic and Social Affairs, Population Division. (2015). World population prospects: The 2015 revision. *key findings and advance tables. New York, USA*.

United Nations. International Stratety for Disaster Reduction. Secretariat. (2015). *Global Assessment Report on Disaster Risk Reduction 2015: Making Development Sustainable: the Future of Disaster Risk Management*. UN.

Van der Meer, Y (2018) Life Cycle Assessment: Benefts and limitations. https://fibrenet.eu/index.php?id=blog-post-eleven. Accessed 15 Nov 2020

Van Odijk, S., & Van Bovene, F. (2014). Circular Construction. The foundation under a renewed sector. *ABN. AMRO. Available at: https://www. slimbreker. nl/downloads/Circle-Economy_Rapport_Circulair-Construction_05_2015. pdf. Accessed*, *25*, 12-20.

Van Sante, M. (2017). ‘Circular Construction.

Veuger, J. (2018). Trust in a viable real estate economy with disruption and blockchain. *Facilities*.

Walport, M. G. C. S. A. (2016). Distributed ledger technology: Beyond blockchain. *UK Government Office for Science*, *1*, 1-88.

Wang, K., Vanassche, S., Ribeiro, A., Peters, M., & Oseyran, J. (2017). Business models for building material circularity: learnings from frontrunner cases. In *International HISER Conference on Advances in Recycling and Management of Construction and Demolition Waste*.

Webster, K. (2017). *The circular economy: A wealth of flows*. Ellen MacArthur Foundation Publishing.

Weernink, M. O., van den Engh, W., Fransisconi, M., & Thorborg, F. (2017). The blockchain potential for port logistics. *White Paper-Blockhain*.

Weidema, B. P., & Wesnaes, M. S. (1996). Data quality management for life cycle inventories—an example of using data quality indicators. *Journal of cleaner production*, *4*(3-4), 167-174.

Winans, K., Kendall, A., & Deng, H. (2017). The history and current applications of the circular economy concept. *Renewable and Sustainable Energy Reviews*, *68*, 825-833.

Wu, X., Peng, B., & Lin, B. (2017). A dynamic life cycle carbon emission assessment on green and non-green buildings in China. *Energy and Buildings*, *149*, 272-281.

Yli-Huumo, J., Ko, D., Choi, S., Park, S., & Smolander, K. (2016). Where is current research on blockchain technology?—a systematic review. *PloS one*, *11*(10), e0163477.

Yli-Ojanperä, M., Sierla, S., Papakonstantinou, N., & Vyatkin, V. (2019). Adapting an agile manufacturing concept to the reference architecture model industry 4.0: A survey and case study. *Journal of industrial information integration*, *15*, 147-160.

Yu, D., Tan, H., & Ruan, Y. (2011). A future bamboo-structure residential building prototype in China: Life cycle assessment of energy use and carbon emission. *Energy and Buildings*, *43*(10), 2638-2646.

Zheng, Z., Xie, S., Dai, H. N., Chen, X., & Wang, H. (2018). Blockchain challenges and opportunities: A survey. *International Journal of Web and Grid Services*, *14*(4), 352-375.

Zimmermann, M., Althaus, H. J., & Haas, A. (2005). Benchmarks for sustainable construction: A contribution to develop a standard. *Energy and Buildings*, *37*(11), 1147-1157.