

A transdisciplinary perspective on “Community Participation”

Deliverable 4.2

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RE-DWELL

Deliverable 4.2. A transdisciplinary perspective on “Community Participation”

Version 1

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Executive summary

This report presents the work undertaken in Task 4.2 "A transdisciplinary perspective on Community Participation" which together with Task 4.1 "A transdisciplinary perspective on Design, Planning, and Building " (Deliverable 4.1) and Task 4.3 "A transdisciplinary perspective on Policy and Financing" (Deliverable 4.3) constitute a core component RE-DWELL's Work Package 4 "Transdisciplinary affordable and sustainable housing research framework". The primary goal of these three tasks is to equip Early-Stage Researchers (ESRs) with the methodologies and tools necessary to conduct their research on affordable and sustainable housing from a transdisciplinary perspective.

The work contained in this document has been developed in parallel with the work reported in Deliverables 4.1 and 4.3. To carry out these three lines of inquiry along each of RE-DWELL's three intertwined research areas – "Design, Planning, Building", "Community Participation" and "Policy and Financing"–, 14 ESRs have been assigned to one of the three research areas most relevant to their research projects.

The process of the three lines of work has been as follows:

- Identifying key issues derived from the work conducted in the ESR research projects
- Deriving societal challenges related to the issues identified the research projects
- Interlinking challenges across the three research areas

Key themes identified by four research projects focusing on the "Community Participation" area include citizen engagement in urban regeneration, particularly community-led planning, to bring together residents under shared goals and to decentralize power from national to local levels; fostering a community-led housing movement to unravel the intricate relationship between architectural outcomes and social dynamics, employing the capabilities approach to analyse factors influencing collaborative housing; promoting innovative collaborative governance for neighbourhood-level urban development, emphasizing citizen engagement; exploiting the potential of urban commons to transform urban governance, emphasizing community engagement, social innovation, and sustainable resource management; and equipping professionals with the necessary skills to foster sustainable community development by implementing a commons-based pedagogical framework for architectural housing studios.

A transdisciplinary approach to affordable and sustainable housing necessitates the involvement of non-academic stakeholders who can identify and effectively address housing problems through their knowledge and experience. With this purpose, the topics identified through the research projects are conveyed as challenges in accessible language to facilitate dialogue with a broad audience. Some of the identified challenges include the long-term engagement of actors in municipality-citizen collaboration toward sustainable neighbourhood development; reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach; supporting community engagement in the development of community-led initiatives; and a limited understanding of the contribution of space to the success of urban common initiatives.

The report concludes by identifying several issues that span across the three RE-DWELL research areas, which are pertinent for future research and real-world activities aimed at providing affordable and sustainable housing:

- **Expanding the scope of community participation.** This is crucial for fostering inclusive, sustainable urban development. It ensures diverse perspectives are integrated into architectural design, policy-making, and financing, enhancing social cohesion and equity.
- **Enhancing participatory processes.** By involving diverse community groups, especially marginalized populations in decision-making, we can ensure that architectural and urban design solutions address the needs of all residents. This leads to more sustainable and resilient communities, improved social cohesion, and the empowerment of individuals to shape their living environments.
- **Addressing emerging challenges.** As cities grow and change, new problems such as climate change, technological advancements, and socio-economic disparities arise. Tackling these challenges through participatory approaches enables communities to adapt, innovate, and develop solutions that promote sustainable and inclusive urban development for all residents.
- **Cross-disciplinary approaches.** Collaboration among various stakeholders across multiple fields, such as architecture, urban design, policy, and finance, ensures that community-driven initiatives are well-rounded, sustainable, and equitable, ultimately enhancing the quality of life for all community members.

The future of community participation research lies in its ability to adapt to emerging challenges and leverage new opportunities. By expanding the scope of engagement, enhancing participatory processes, addressing pressing issues, and embracing cross-disciplinary approaches, researchers can contribute to more inclusive, sustainable, and resilient urban environments. These efforts will not only improve housing affordability and sustainability but also empower communities to shape their own futures through integrated design, policy, and financial strategies.

1. Introduction

The work contained in this report is part of the construction of a research framework for affordable and sustainable housing carried out with the objective of equipping Early-stage Researchers (ESRs) with the methods and tools necessary to conduct their research within a transdisciplinary perspective.

Through various activities carried out over the three years of the network—which include training and research in diverse environments—researchers have had the opportunity to integrate theoretical insights from various disciplines with their research objectives. This fostered the acquisition of skills to implement a transdisciplinary approach to address the challenges currently facing the provision of affordable and sustainable housing. The ultimate objective is to establish a shared language to link individual research with the expertise provided by scholars and professionals from the ten universities and twelve non-academic organizations involved in the RE-DWELL network, and to develop and apply methods that facilitate dialogue between experts and non-experts in real-world cases aimed at addressing contemporary housing issues.

The main purpose of Work Package 4, “Transdisciplinary Affordable and Sustainable Housing Research Framework,” is to facilitate the creation of interlinks among the ESRs’ projects across the three intertwined research areas that make the RE-DWELL comprehensive approach to housing –“Design, Planning, and Building” (Deliverable 4.1), Community Participation” (Deliverable 4.2) and “Policy and Financing” (Deliverable 4.3)– , spanning across academic and non-academic realms (Figure 1).

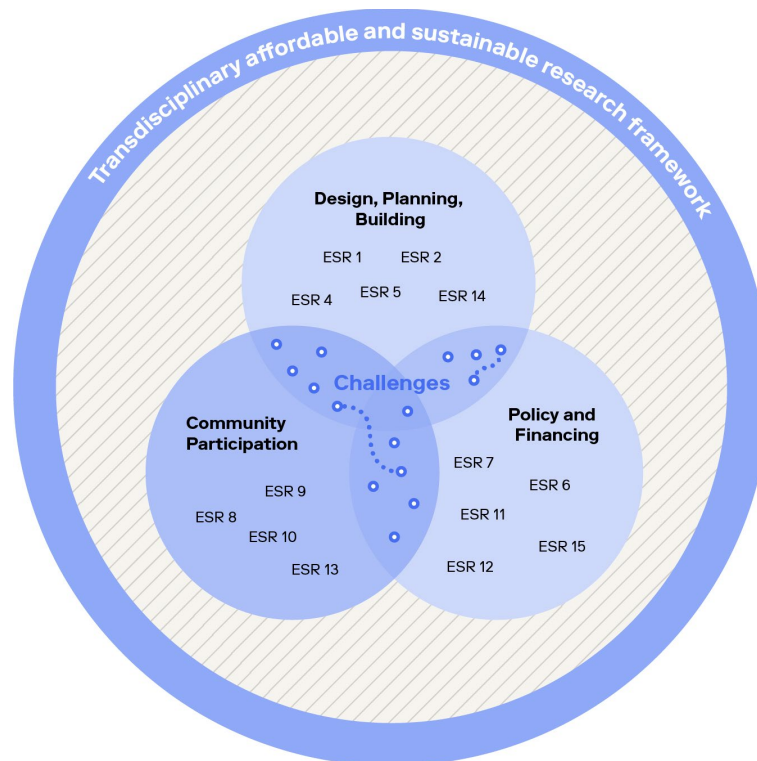


Figure 1. RE-DWELL's transdisciplinary research framework highlighting challenges arising from the interaction among three research areas, with a focus on “Community Participation”

As a result of the activities carried out in the network, a rich research environment has been created through the interweaving of the ESRs' projects and their interactions with academic supervisors and non-academic partner organizations. Following a bottom-up approach, the construction of this environment started with the ESRs' research projects (Figure 2). At the outset, the fifteen projects addressed multiple issues related to the provision of affordable and sustainable housing which potentially spans various domains and involves diverse professional fields (e.g. "Tensions between affordability and sustainability and the implications for vulnerable groups", "Lifecycle cost analysis and socioeconomic impact of existing social housing construction methods").

Throughout the activities conducted within the network, various components of the transdisciplinary research framework were introduced and interconnected:

- A [vocabulary](#) (Deliverable 4.4) consisting of definitions of key terms stemming from the individual research, and [case study library](#) (Deliverable 4.5) of relevant examples related to the RE-DWELL multidisciplinary approach to affordable and sustainable housing started to be collaboratively created at the start of the network activities and continued until their end.
- The research conducted by ESR projects related to each of the three intertwined research areas and complemented with their secondments, converging into a set of societal challenges (Deliverables 4.1, 4.2 and 4.3).
- Research on transdisciplinary methodologies within Deliverable 4.6 "Transdisciplinary research framework" provided a tripartite structure of systems, target and transformational knowledge to be used as shared language between stakeholders involved in real-world housing initiatives.
- The application of the framework components to specific cases, with local stakeholders, participatory techniques, including serious games and focus groups (Deliverable 4.7).

During the development of the collaborative research, throughout courses, workshops and field studies, these components became interlinked in multiple ways.

- Vocabulary terms and case studies relationships are linked on the website.
- Challenges are the result of both the scientific research undertaken within ESRs projects and the insights provided from non-academic stakeholders, including partner organisations and third-parties contacted by researchers in the course of their project.
- Participatory activities implemented in real-case scenarios applied the knowledge gained during the development of a shared language.

Ultimately, the goal of this transdisciplinary research work carried out by the network is to have a societal impact on stakeholders involved in the provision of affordable and sustainable housing. With this purpose, Deliverable 5.16-17 "Exploitation Plan" will develop strategies and communication campaigns specifically directed at exploiting the research findings in non-academic sectors (administration, industry, community).

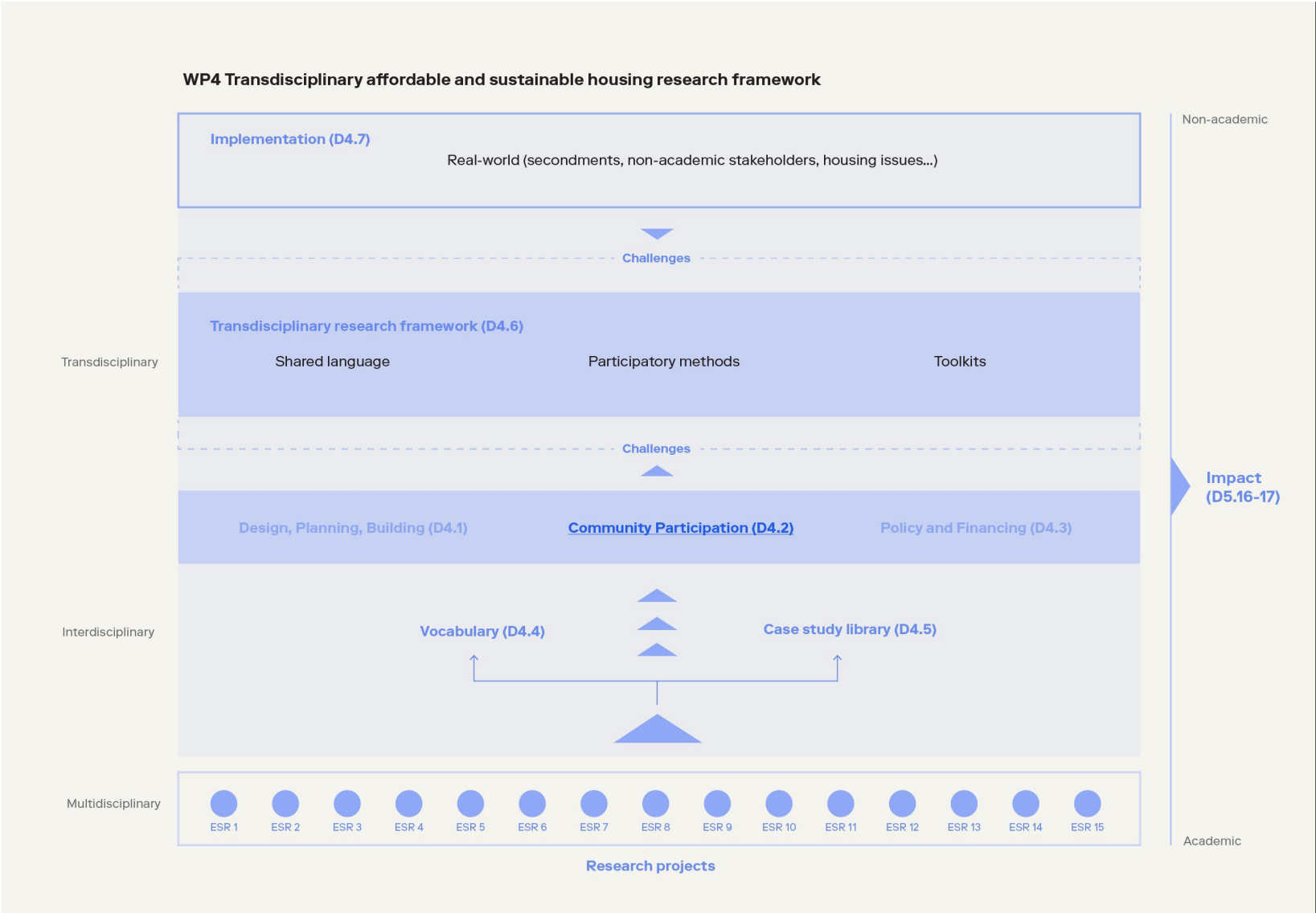


Figure 2. Components of the transdisciplinary research framework

Interrelated research areas

“A transdisciplinary perspective on Community Participation” is one of the lines of work carried out within WP4 aimed at identifying research pathways cutting across three research areas – the other two being “Design, Planning, Building” (Deliverable 4.1) and “Policy and Financing” (Deliverable 4.3) – which become intertwined in the transdisciplinary research on affordable and sustainable housing conducted by early-stage researchers in the RE-DWELL innovative training network.

The research area on “Community Participation” addresses the role of dwellers in shaping their living environments in multiple forms and contexts, from private housing to public spaces. Their participation ensures that housing projects are tailored to meet their needs, thereby contributing to long-term sustainability and affordability. Involving residents in planning and decision-making processes fosters a sense of ownership and pride in the community. This research area is connected to the other two insofar residents can be involved in the housing co-design and construction stages (“Design, Planning, Building”) and advocate for policies and projects that prioritize affordability and sustainability, influencing decision-makers and stakeholders (“Policy and Financing”).

The work contained in this document has been developed in parallel with the work reported in Deliverables 4.1, “A Transdisciplinary Perspective on Design, Planning, Building,” and 4.3, “A Transdisciplinary Perspective on Policy and Financing.” The work carried out along these three lines focuses on one of the research areas while aiming to identify issues in the other two, with which they can be interrelated, in order to gain a comprehensive understanding of the challenges involved in providing housing that is both affordable and sustainable.

The process followed in the three reports has been as follows:

1. Identifying key issues derived from the work conducted in the ESR research projects
2. Deriving societal challenges related to the issues identified in the research projects
3. Interlinking challenges across the three research areas

To carry out the three lines of work, the 14 ESRs were assigned to the areas which were most relevant to their research projects, as reflected in Table 1.

Table 1. ESRs and research areas

Research area	ESRs
Design, Planning, Building	Annette Davis (ESR1) Saskia Furman (ESR2) Aya Elghandour (ESR4) Mahmoud Alsaeed (ESR5) Carolina Martín (ESR14)
Community Participation	Andreas Panagidis (ESR8) Effrosyni Roussou (ESR9) Zoe Tzika (ESR10) Androniki Pappa (ESR13)
Policy and Financing	Marko Horvat (ESR6) Anna Martin (ESR7) Tijn Croon (ESR11) Alex Fernández (ESR12) Leonardo Ricaurte (ESR15)

2. Structure of the report

The working process transitioned from individual research projects to societal challenges spanning across the three research areas as reflected in the structure of this report (Figure 3).

Section 3 introduces some of the key research issues encompassed in the subject area of "Community Participation," which are derived from the work conducted by the early-stage researchers. It is divided into three subsections: a summary of the research projects, including research questions and objectives, and a literature review on key issues related to the research topic.

Based on the knowledge obtained over the previous two years of research within the RE-DWELL network, a series of societal challenges identified by researchers are presented in Section 4. The description of the challenges includes the actors, methods, and tools involved, as well as the related entries in the shared vocabulary and case study library.

In Section 5, each challenge identified within the area of "Community Participation" is related to challenges proposed by researchers working on the other two research areas, "Design, Planning, Building" and "Policy and Financing."

Finally, Section 6 contains a reflection on the work done and suggests directions for future research.

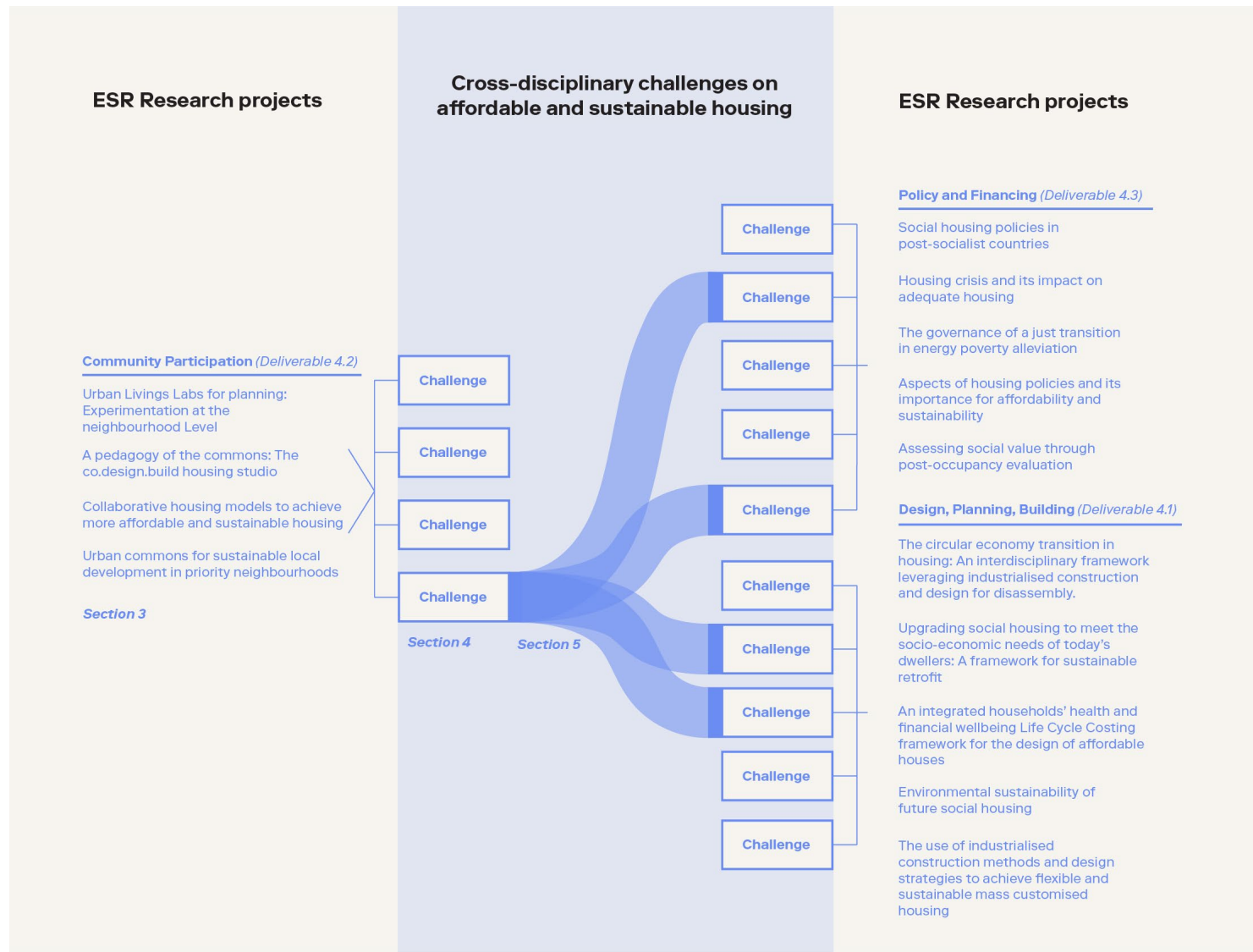


Figure 3. Working process and structure of the report

3. Research projects

In this section, each of the four early-stage researchers focusing on “Community Participation” provides a summary of their research work and synthesizes the literature review on the key topics related to it.

3.1. Urban Livings Labs for planning : Experimentation at the neighbourhood level

by Andreas Panagidis (ESR8)

3.1.1. Research project

Expanding the discourse on affordable and sustainable housing requires an investigation into path-dependencies and decision-making processes in urban development. A main hypothesis is that the global housing crisis is best understood as an urban governance crisis stemming from inequitable decision-making processes in planning. Through the examination of innovative and place-based models for citizen participation in urban governance and planning, the study offers opportunities for critical reflection of the role of the spatial planning discipline in housing development, with a focus on collaborative governance processes and institutional innovation. There is growing momentum in housing research which increasingly emphasizes the social and governance-focused dimensions of housing and neighbourhood planning. These two traditionally separate areas of research present great potential for producing new knowledge when connected:

- The concept of social infrastructure, understood as a set of social relations and interactions with physical resources (including housing), co-created by both state and non-state actors
- The significant need for innovation in urban governance at the neighbourhood or block level, which involves utilizing urban experimentation methodologies and exploring collaborative governance as an innovative approach to neighbourhood planning

Interlinking these two research areas involves the development of a conceptual framework which integrates the concepts of social sustainability, collaborative governance, experimentation in urban planning and the urban commons. By creating an Urban Living Lab in a suburban area of Nicosia, the aim of the project is to use novel methods to investigate the boundaries to and opportunities for collaboration between the municipality, citizens and other urban development actors at the neighbourhood level.

Research questions

1. Which ULL methods, organisational structures and scales of co-production facilitate experimentation in planning, leading to socially sustainable housing environments?

1.1 Through which social infrastructure resources can communities connect the realm of the household to the realm of the neighbourhood?

1.2 Which common goals can be decided by participants in order to initiate self-organisation towards the co-production of social-infrastructures?

1.3 What organisational structure can facilitate the collaboration between local government officials and citizens for the co-production of social infrastructure?

1.4 How does the co-production of local knowledge proliferate and how does this process alter the perceptions that citizens and public officials have on co-production?

1.5 How are the ULL workshops organised to operationalise the above research sub-questions?

Expected outcomes

- Analysing the specific challenges regarding housing and social infrastructure from the perspective of citizens (users)
- Mobilising community self-organisation to investigate citizen engagement in the co-production of social infrastructures
- Exploring innovative, collaborative governance arrangements between citizens and local government
- Applying the methodology of participatory action research in planning by using the ULL approach
- Revealing the contextual factors which matter the most when bringing different stakeholders together to co-produce solutions to urban problems

3.1.2. Literature review

A vast number of studies have been dedicated to defining social sustainability by developing frameworks and indicators particularly relevant to urban development and housing discourse (Dempsey et al., 2011; Murphy, 2012; Woodcraft, 2012). However, as the social dimension is harder to quantify than the economic or environmental, the operationalisation of social sustainability goals into spatial, “actionable” principles remains a challenging undertaking. Cuthill’s framework is built around four components: (a) “social capital provides a theoretical starting point for social sustainability”; (b) “social infrastructure provides an operational perspective”; (c) “social justice and equity provide an ethical imperative” and (d) “engaged governance provides a methodology for ‘working together’” (Cuthill, 2010, p. 366).

The sustainability of a community, which can be considered another definition of social sustainability (Dempsey et al., 2011), is linked to the interrelated concepts of social cohesion and social capital. Social cohesion is often loosely defined by social interaction, a positive sense of identification or belonging within a community, and the coexistence of diverse populations. It is promoted as a policy objective of sustainable development. Aspects of social cohesion, such as solidarity, social integration, minimizing marginalization, and shared values among groups in society, are connected to housing and neighbourhood planning. A practical way of defining social cohesion, or the sustainability of a community, is simply as the by-products of the routines of everyday life when the neighbourhood serves as the site of social interactions that are shared and “co-located” to a certain extent (Forrest & Kearns, 2001).

A recent report by the OECD examines a range of place-based theories and the growth of experimental governance initiatives which are most prominent at the subnational, local level (Morgan, 2018). In these, local units are given sufficient autonomy and space for innovation, exercising the capacity of decentralised problem solving and innovation in policy making. In the exploration of alternative paths to sustainable urban development via community-based projects and counter-hegemonic initiatives (Moulaert et al., 2007), neighbourhoods are perceived as “pivotal” sites from which emancipatory social change may be scaled up. However, it is especially difficult to decisively determine a universal scale of the “neighbourhood”. In much of the literature, it is the importance of social interaction and the benefits of spatial proximity and common values provided by local conditions that is repeatedly emphasised (Seyfang & Smith, 2007; Wolfram, 2017).

The meaning of the enduring concept of neighbourhood also evolves alongside changes in governance relations. Madden (2014) claims that “in today’s unequal city, neighbourhoods have a diversity of sources, goals and forms that have varying impacts on different groups” (p.481),

shifting the question from what the neighbourhood is, to who is involved in its production and how is its social infrastructure planned and distributed. Furthermore, not only should affordable and sustainable housing be considered essential to social sustainability goals, but housing as a resource which is connected to community resources/social infrastructure.

By placing more emphasis on governance, the “local level” is considered the primary spatial and operational level of analysis. In other words, the governance approach to social sustainability highlights the importance of “the community space as the main arena for the achievement of sustainability” (Colantonio et al., 2009, p. 20). As social sustainability scholars emphasise the concept’s political potential, they bring to light “a range of matters affecting the cities social sustainability status: the localised effects of national policies, health and education, infrastructure and housing, local urban management and historical factors” (Davidson, 2009, p. 614). New models are therefore central in the exploration of new visions of the sustainable city that begin from the right of inhabitants to participate in decisions about the production of urban space and delve into the local aspects of sustainable development.

Ansell and Gash (2008) define collaborative governance as “a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets” (p. 544). Shared knowledge is highlighted as “the currency” of collaborative governance and determines to a large extent the capacity to challenge the authority of experts (Emerson et al., 2012). Emphasis is placed on the direct engagement rather than the mere consultation of non-state actors and on the representation of all stakeholders affected by a decision.

The need for more democratic forms of decision-making processes in urban development has led to the search for new governance arrangements. In this regard, urban governance experiments are increasingly being set up in areas of public administration and city planning, facilitated by the urban living laboratories (ULLs) methodology (Höflechner & Zimmermann, 2016). Although laboratories are more typically considered as isolated spaces, ULLs manage to combine and negotiate the need to function as microcosms of the wider regimes they are aiming to transform, bypassing certain institutional barriers while also by being embedded in their real local context.

Arguably, the most important characteristic of ULLs is their function as platforms to bring actors from local authorities (and other public organisations), academia, citizens and businesses together in new ways. The collaboration of these four sectors, is referred to the “quadruple helix” model for innovation (Lupp et al., 2021; Puerari et al., 2018). In the field of urban development, issues that are addressed may involve experiments aimed at the reconfiguration of planning institutions (Scholl & de Kraker, 2021), the development of nature-based solutions (Rizzo et al., 2021), addressing sustainability and community engagement challenges in the suburbs (Buhr et al., 2016), the changing roles of municipalities related to Smart City visions (Kronsell & Mukhtar-Landgren, 2018), sustainable urban food systems (Brons et al., 2022) and more.

In ULLs, the challenges faced by bringing together multiple stakeholders are contextualised and contained within a manageable scale. In addition, the potential for innovation lies at the boundaries between different groups and on the actors who are able to span these boundaries (Juujärvi & Pessa, 2013). Literature on ULLs also highlights their intention to improve socio-material conditions through real-life interventions and the capacity to involve marginalised groups as co-creators (Bulkeley et al., 2019). By emphasizing the importance of co-creation, ULLs can be understood as an environment and a means for an innovation in governance and a methodology that is user-centred and geographically embedded. The co-production of local knowledge and shared values at the community level (Puerari et al., 2018) is therefore an important goal of ULLs and this can be used as a platform to formulate policy advice, for

example, regarding decentralised energy, affordable and sustainable housing, public space and other issues that can benefit from direct community involvement.

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3.2. A pedagogy of the commons: The co.design.build housing studio

by Effrosyni Roussou (ESR9)

3.2.1. Research project

In the face of intricate global socio-political and environmental challenges exacerbated by ongoing systemic failures, accessing affordable and sustainable neighbourhoods has become increasingly elusive for a growing number of people, particularly in contexts where welfare policies are limited. The role of architects in spatially shaping these realities has faced criticism for its detachment from real-world concerns, ethical considerations, and its role in reinforcing dominant systems, a detachment that illustrates architecture's historical ties to modernity and capitalism.

Architectural pedagogy and education have contributed significantly to the way architects practice architecture. A significant number of scholars have criticised the underpinnings of the cornerstone of architectural education, the design studio, by addressing both the premise, structure, and syllabus, and a hidden curriculum. The traditional design studio is designed to operate in isolation from the realities of people, fostering self-indulgence, self-reference, competitiveness, and a false sense of primacy in spatial matters.

Efforts have emerged to challenge this studio framework. Experimental teaching practices aim to open up architectural education to politically engage and transdisciplinary learning practices. Participatory design and co-creation methods entered the educational discourse as a way to reconsider both the knowledge, the way it is produced and who gets to be involved in its production. Design & building projects, grounded in reconnecting the architect with the material, increasing their accountability towards users and communities, and aiding them to understand architecture as a node in a web of real-world dependencies. Both of these have sought to decentralise the self-perceived role of the architect within social (re)production and destabilise the stiff boundaries of the discipline. However, despite the significant proliferation and popularisation of such approaches in recent years, albeit as a form of acupuncture, the persisting stalemate between them and the hegemonic discourses permeating architectural education leaves prospective spatial practitioners with insufficient skills to navigate current realities.

This research project explores alternative approaches to architectural education need to be re-contextualised within the broader anti-hegemonic discourse of the commons, and profoundly challenge (1) the nature of the produced knowledge, the way and by whom it is produced, exchanged, and transferred, (2) the hegemonic relations, the culture, norms, and values (re)produced -within and beyond the classroom- that shape the identity and the role of the architect within socio-spatial production and finally (3) the discipline itself, its boundaries, and the formal and informal rules that determine what is acknowledged as (sustainable) architecture.

The research combines participatory action research and autoethnographic methods, having as a basis of operations the University of Cyprus, and focusing on the broader region of the European South, as crisis-ridden contexts. The educational framework (co.design.build studio) that will be developed through this exploration will be tested in several iterations, to gain insights on its impact primarily on students, and secondly on local participating communities. Finally, this project aims to contribute to the ongoing discussion about the need to reimagine architectural education at the bachelor level, within and beyond its staple component, the housing design studio, for future spatial practitioners to be able to navigate the increasingly uncertain and volatile current realities. Additionally, through its practical, hands-on socio-spatial outreach and collaboration with local actors, this project aspires to rethink academic

institutions as commoning spaces and important actors within spatial production. The final aim of this project is to discuss the need for a critical approach to transdisciplinary collaborations as learning processes, through the notion of commons/commoning.

Research questions

- 1 What are the underpinnings and pedagogical impact of an effective, engaging, and impactful studio that combines critical co-creation methodologies with a design and build learning environment (co.design.build)?
- 2 How can a co.design.build studio become an important actor both in deconstructing norms perpetuated within architectural education through the traditional design studio and in advocating-in-action for equitable, affordable and sustainable neighbourhoods, especially in the context of the European South?
- 3 How can the learning process be transformed into a commoning process among students, teachers, and stakeholders through the co.design.build studio?

Expected outcomes

This research project aims to develop a commons-based pedagogical framework for an engaging, impactful, live housing studio, aspiring to be established as an important actor within local spatial production processes especially in the contexts of crises of the European South.

To achieve this aim, the research outlines specific objectives:

- Analyse Relevant Good Practices: create a matrix of relevant examples (co-creation/co-production processes, design & build practices), both from education & practice, as well as both from the global North & global South
- Identify shared contextual factors of contexts-in-crisis: address the shared socio-cultural & political characteristics that influence multi-stakeholder engagement in architectural education
- Explore students' perspectives through participatory action research (PAR): iteratively construct & test pedagogical modules & strategies through a feedback loop with the students.

3.2.2. Literature review

As the global socio-political and environmental challenges become increasingly complex and pressing due to continuous systemic failures, the access to decent, affordable and sustainable neighbourhoods in urban centres is becoming increasingly unattainable for the vast majority of people. Especially in contexts where relevant welfare policies and safeguards are limited or dismantled -as in the European South (Hadjimichalis, 2011; Maloutas et al., 2020; Panori et al., 2019)- either due to consecutive systemic crashes or to neoliberal exploitative practices, such as financialisation (or both) (Aalbers, 2017; Alexander et al., 2018; Janoschka et al., 2020; Jover & Cocola-Gant, 2023).

Among the web of actors that influence the urban landscapes, the architect's role within socio-spatial (re)production has often been criticised for its detachment from the realities of people, its severance from the political and ethical considerations of design decisions, and its overall complicity in perpetuating hegemonies, a result of architecture's unmediated relationship with modernity and capitalism (Doucet, 2017; Harriss & Widder, 2014; Jobst & Stead, 2023; Lorne, 2017; Petrescu & Trogal, 2017; Till, 2009).

Naturally, architectural pedagogy and education have contributed significantly in the way architects practice architecture. The cornerstone of architectural education, i.e. the housing design studio, is the offspring of architecture's unmediated relationship with modernity and capitalism, modelled after the École des Beaux Arts and Bauhaus curricula (Eigbeonan, 2015). Over the years, a significant number of scholars have criticised the underpinnings of the

normative design studio by addressing both the premise, structure and syllabus, and the hidden curriculum (Dutton, 1987; Ward, 1990). The normative design studio is designed to operate in isolation from the realities of people, fostering self-indulgence, self-reference, competitiveness, and a false sense of primacy in spatial matters. In this pedagogic context, students exhibit no agency over their education and learning process, as emphasis is given in accumulating knowledge and information rather than critically examine it (Jobst & Stead, 2023). The hidden curriculum, on the other hand, allows societal hegemonies to permeate the interactions between students and staff and reproduce hierarchical relations (Ward, 1990). In a sense, it resembles the way generational trauma is passed down from one generation to the next: students that have learned in isolation, competitiveness and forged a self-image of unchallenged expertise, become out-of-sync practitioners, unable to cope with the complexities of contemporary challenges, or they become teachers who reproduce these norms within the classroom.

There have been efforts to subvert and deconstruct the (arche)typical premise of the design studio. Ever since the 1960s and 1970s experimental teaching practices have sought to conceive architectural pedagogy “as a political arena beyond the confines of architecture teaching” (Colomina et al., 2022, p. 12). The 1968 protests brought about the destabilisation of the rigid disciplinary boundaries of architecture and architecture schools, with the adoption of teaching methods that renegotiated the architect’s positionality (Charitonidou, 2021), and disputed the need for confinement to the classroom (hooks, 2003).

Some scholars have then since advocated for the need of a transdisciplinary approach to architectural education that will anchor it into reality (A. Salama, 2006, 2008, 2011). Participatory design and co-creation methods entered the discourse through the live studio framework, as a way to reconsider both the knowledge, the way it is produced and who gets to be involved in its production (Salazar Ferro et al., 2020). Design-build projects, grounded in reconnecting the architect with the materiality of their design decisions, in increasing their accountability towards the end-user and in aiding them to understand architecture as a node in a web of real-world dependencies (Pak & De Smet, 2023; Stonorov et al., 2018), have sought to decentralise the self-perceived role of the architect within social (re)production and the discipline.

All these hands-on methods, along with other more theoretical ones, targeting the teaching of architectural history as a colonised narrative of the past, shed plenty of light in the uncertainty surrounding the types of values architecture has been promoting and the hegemonies it has been upholding. However, all these alternative practices, with their varying degrees of political engagement and norm deconstruction, have neither really made it into the core of architectural education, nor fully challenged the primacy of the traditional design studio, and have so far remained as supplemental pedagogical models, in most parts of the world.

Arguably, this can be partly attributed to the adaptability and mutability of the network of hegemonies at play, bound together under capitalism, which, in its current form of neoliberalism, permeates people’s livelihoods in an economic, symbolic, psychic and ontological way (de Lissovoy, 2022). Capitalism “systematically organises moral discourses in education even as schools and universities are nominally opposed to the current moment’s devastating inequities” (de Lissovoy, 2022, p. 6) and demonstrates a unique ability to co-opt and de-radicalise dissident movements, ideas and practices, a fact which could be regarded as both a cause and a result of this permeation.

Sustainability for example, a term that has entered public and political discourse globally, and often been set as both a value and a design goal in educational activities within architecture schools, originates from the radical ecological movements of the 1960s (Tulloch, 2013; Tulloch & Neilson, 2014). The ambiguity with which the term emerged (Donovan, 2020; Keeble, 1988; Purvis et al., 2019), led to contradictory discourses and strategies, such as “green growth”

(D’Alisa et al., 2015) and techno-environmental “band-aid” solutions in architecture, branded as “green architecture” (Damiani, 2021).

The stalemate between dominant, hegemonic discourses, permeating architectural education and the almost acupunctural approach, often superficial and apolitical applications of alternative methods, leaves prospective spatial practitioners with inadequate skills in order to navigate a world increasingly in flux and crisis. Architectural education is therefore in need of a new dissenting paradigm that can challenge and destabilise the foundational pillars, i.e. the knowledge, the reproduced self-image, and the disciplinary boundaries, in an effort to create enclaves that strive to break away from the neoliberal understanding of academic institutions.

There is currently a wave of reconceptualising education, learning, and ultimately the university as commons. The commons are essentially resources, material or immaterial, that are managed (commoning) by their users (commoners) in a non-profit oriented and prosocial way (Bollier, 2021). In essence, they are “a means to generate social processes that can maintain, reproduce, and reinvent our lives in times of uncertainty” (Urban Commons Research Collective, 2022, p. 16). The commons stand as an alternative and opposite to the market enclosures created and perpetuated by capitalism and neoliberalism. Within education this would mean going against knowledge enclosures and disciplinary limitations as well as the set of norms and values they come with. Commoning education means allowing for multiple ways of becoming, being and connecting and for multiple ways of knowing, both for educators, students, within and beyond those “roles”.

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3.3. Collaborative housing models to achieve more affordable and sustainable housing

by Zoe Tzika (ESR10)

3.3.1. Research project

Collaborative housing models have been emerging as viable alternatives to conventional state or market-driven housing provision, especially in an era characterized by the increasing financialization and commodification of housing. In this context, where housing is often prioritized for profit maximization, without considering the involvement of future residents, such models offer an alternative path, by enabling communities to actively shape the built environment and experiment with diverse ways of living.

This research delves into the dynamics of the grant-of-use cooperative housing model in Barcelona and Catalonia, which emerged in the aftermath of the 2008 economic crisis, rooted in the principles of democratic governance, communal living, and public-communitarian collaboration. Beyond the fundamental goal of securing affordable and stable housing, these groups strive to combat social isolation, prioritize care as a central aspect of co-living, foster sustainable lifestyles, and promote mutual support and communal living among residents.

The study employs a comprehensive mixed-method research methodology drawing upon quantitative data sourced from Catalonia's cooperative housing observatory and qualitative data collected through extensive fieldwork. This multifaceted approach encompasses interviews, site visits, focus groups, document analysis, and participatory action research, enriched by informal conversations, presentations, and participant observation. By synthesizing diverse data sources, the research aims to provide a nuanced understanding of collaborative housing's transformative potential in contemporary urban contexts.

Research questions:

- 1 How can community-led housing initiatives foster sustainable and inclusive urban developments?
- 2 What are the critical factors and contexts that facilitate or inhibit the development of affordable and sustainable community-led housing?
- 3 How can community participation be supported by local authorities, non-profit organisations and academic research to achieve meaningful housing results for the residents?

Expected outcomes

The aim of this study is to shed light on the evolving landscape of community-led housing in Catalonia. This is achieved, firstly, by comprehending the driving forces behind Barcelona's emerging grant-of-use cooperative housing movement and the relationship between architectural outcomes and social dynamics. Secondly, through the application of the capability approach it analyses the critical factors that enable or hinder valued outcomes for the groups. Thirdly, examining the achieved housing outcomes in terms of physical, social and institutional aspects and their impact on shaping inclusive living environments. Ultimately, the study's findings have the potential to inform housing policies and guide stakeholders involved in community-driven initiatives towards achieving sustainable and inclusive outcomes.

3.3.2. Literature review

Over the past few decades, Europe has witnessed the emergence of new models of collective or participatory housing (Tummers, 2016; Vestbro, 2010). These community-driven housing models are seen as a means to fulfil locally defined housing needs and aspirations, with a strong emphasis on empowering local communities (Jarvis, 2015). Central to these models is the concept of community participation, which manifests in various facets such as governance, housing provision, design, and land ownership among others (Salama, 2019). Furthermore, community participation is viewed as a spectrum, ranging from self-organised groups aiming to collectively address their housing needs, to groups being initiated by non-profit intermediate organisations functioning as community-led developers (Lang et al., 2020). The active involvement of the future residents goes beyond the typical public consultation often seen in urban planning processes (Arnstein, 1969), granting them greater control over the process, fostering community, and shaping housing designs with shared spaces and amenities. Finally, engagement can occur at any phase of the process, including initiation, design, implementation, and ongoing management, and may involve collaboration with external stakeholders (Viskovic Rojs et al., 2020).

Collaborative housing initiatives can be valuable tools to address contemporary urban challenges. They serve as an alternative to address housing shortages (Droste, 2015; Szemző et al., 2019), more affordable and sustainable housing (Brysch & Czischke, 2021; Chatterton, 2013; Scheller & Thörn, 2018), introduce the ethics of care and mutual support in housing (Power & Mee, 2019; Scanlon & Fernández Arrigoitia, 2015) and as a mechanism to deal with issues of social exclusion (Williams, 2005). Moreover, collaborative housing can have a transformative impact on entire neighbourhoods, creating communal spaces, and fostering social networks in the area (Fromm, 2012; Jarvis, 2015). The literature approaches these topics from several angles, encompassing social, material, legal, organizational, and motivational characteristics.

Participation in housing dates back to the beginning of the twentieth century, in response to various social issues in different geographical contexts. According to Vestbro & Horelli (2012) it was initially influenced by the ideas of the social utopians. Early examples are found in the material feminists in the US in the 1900's (Gimenez, 2000). These were followed by a series of initiatives ranging from co-housing of single-parent women in Sweden in the 1930's, to a need for more communal ways of living in Denmark in the 1960's, to more environmental concerns in recent years (Thörn et al., 2020). Thus, collective and self-managed forms of housing can have ideological, economic, social and ecological motivations (Caldenby et al., 2020). Collaborative housing projects can vary in terms of social composition (age, gender, number of units) ownership and form of tenure; development model (land access, construction type), design typologies (relation of private to common areas) and ethos (ecological, affordability, feminist, etc) (Fernández Arrigoitia et al., 2023). Recent cases have also appeared in countries for which there had been no precedent, notably those in the southern and eastern regions of Europe (Etxezarreta et al., 2019).

The recent resurgence of collaborative housing coincides with the post-crash period of the global financial crisis, leading many researchers to attribute the surge of civic action to market and state failure (Mullins & Moore, 2018). This is the reason researchers detect the lack of adequate and affordable housing (Czischke, 2018) as the main driving force in the context of the increased financialization and commodification of the housing markets and the consequent effects on quality of life and social inclusion. Other authors (Lang & Stoeger, 2018; Moore, 2018) relate the emergence of such initiatives to the devolution of state responsibilities to more local levels and non-state actors. Other motives derive from the social need for mutual support and solidarity, or to overcome loneliness (Scanlon et al., 2021). Such are the cases of elderly people, or monoparental families and are positioned within what is called the crisis of care in modern societies. Apart from the global economic trends that influence such initiatives, there are also

context-specific factors, such as historic and socio-political influences, as well as varied forms and purposes.

The literature navigates the intricacies of housing concepts embracing shared facilities and social interaction. "Collaborative housing" emerges as the overarching term, encompassing resident-focused, collaborative-oriented housing models, characterized by attributes like intentionality, shared vision, robust collective decision-making, and communal practices, contrasting speculative and remote housing allocation mechanisms (Fromm, 1991; Jarvis, 2015). Within this landscape, the literature encompasses more specific terms: "co-housing," "housing cooperatives," "cooperative neighbourhoods," "community land trusts (CLTs)," "ecovillages," and various self-help housing groups. A systematic literature review on collaborative housing conducted by Lang et al. (2018) identified several key thematic areas, including socio-demographics, collaboration dynamics, motivations, effects and contextual factors. Additionally, a significant focus lies on the intersection of collaborative housing initiatives with the social housing sector, given that many administrations incorporate support of such initiatives in their right-to-housing agendas.

One of the challenges of collaborative housing is the relationship it establishes with the wider neighbourhood. Fromm (2012), argues that collaborative housing has the potential to have a positive impact on the neighbourhood. This can be created by fostering mixed neighbourhoods in terms of the residents' incomes or cultural characteristics, integrating vulnerable or marginalized groups, preventing further deterioration with the rehabilitation, or urban infill of sites in deteriorating neighbourhoods, and creating spaces of social interaction with the design of spaces or services open to the neighbourhood. In many cases, the communities are involved in neighbourhood associations, strengthening the social fabric. Another challenge is the effective transformation of local and national policies towards understanding and supporting the meaningful participation of the communities in shaping their environment (Salama, 2019). The relationship with public administration across multiple levels is also important. It can be enabling for cooperative housing, making it affordable and inclusive (Ferreri & Vidal, 2021), by providing policy mechanisms and legal frameworks, and equitable resource access. Also, collaborative housing is often integrated into the right-to-housing agendas of the local administrations, considering it in the range of social housing.

Droste (2015) refers to the risk that collaborative housing projects could function as segregated communities. Important topics include participant composition and identity formation. Considerations extend to addressing societal needs, like those of social housing tenants, immigrants, and homeless people. It is also important to examine the participatory processes, how they are translated into practice or how they are interpreted or implemented by the actors themselves. Empowerment-based participation focuses on building the capacity of community members to take control over their housing situations, through education and resources to community members, enabling active engagement in housing decision-making and self-help initiatives. Another critical facet pertains to the collaboration between resident communities and external stakeholders (Lang et al., 2020). Professional assistance often proves pivotal to project success, raising the topic of balancing independence and community orientation amidst technical and financial support requirements (Mullins & Moore, 2018). Finally, a critical point is the implications of the growth and institutionalisation of these fields. This includes examining whether and how field actors were considering methods of 'scaling up' local initiatives.

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3.4. Urban commons for sustainable local development in priority neighbourhoods

by Androniki Pappa (ESR13)

3.4.1. Research project

Over the last decades, European cities have been experiencing a decline in the function of 'the public', particularly in terms of services and spaces. Privatization and commodification have led to a deterioration in the quality and accessibility of fundamental resources and rights, exacerbating social and physical exclusion, particularly among the most disadvantaged groups and neighbourhoods. In response, a growing number of active citizens are taking initiative to provide themselves and their local communities with affordable and non-market access to goods and services, giving rise to urban commons initiatives. Through self-organisation, individuals are assuming temporary or permanent responsibility for their immediate environments, often through social and cultural initiatives. These range from urban farming to 'neighbour days', renewable energy projects and housing cooperatives, all while regenerating buildings and vacant plots, parks and sidewalks.

These collective actions, often driven by the principles of inclusion and solidarity, rely upon the voluntary commitment of engaged citizens, fostering citizenship and creating social cohesion. Ultimately, they empower people to shape their built and living environment in a sustainable manner. In this regard, the active participation of citizens in these collective actions can provide potential pathways for inclusive urbanism, especially when applied in disadvantaged contexts.

However, there is significant challenge in the lack of frameworks and guidelines to safeguard these initiatives from market and urban 'threats'. Often initiated by spontaneous activities, they frequently clash with existing urban planning regulations and are considered illegal. This contradiction arises at a time when international directives, such as the United Nations' Urban Agenda and Agenda for Sustainable Development 2030, advocate for local participatory policies that prioritize citizen involvement in the decision-making processes that affect their neighbourhoods and lives.

At the same time, while the spatiality of urban commons is widely studied from political and geographical perspectives, there is limited research on the role of space in the development and success of the everyday practices of commoning in residential neighbourhoods. Therefore, from an urban design and planning perspective, there is room for further research on the definition of neighbourhood commons spaces as design typologies, through deciphering the interconnections between space and social processes.

The aim of this research is to contribute to bridging the knowledge gap between the experiences of informal urban commons practices, the emancipatory progressive policies that aim to foment engagement and inclusion and the design-oriented processes such as placemaking. By bringing together these three realms, the research aspires to promote the transformation of neighbourhood public spaces into neighbourhood commons spaces managed by local communities in accordance with their needs, while being supported by local administrations and design professionals. To this end, based on theory along with international on the ground practices, processes and regulations, this research develops an analytical scheme to define and analyse neighbourhood commons spaces.

Research questions

- 1 How are neighbourhood commons spaces defined in the urban design and planning discourse? What are their identifying principles, and what types of neighbourhood commons spaces exist? (defining parameters, identifying principles, typologies)
- 2 What are the key enabling factors for the sustainability of the neighbourhood commons spaces initiatives, and how do they foster the sustainability of (priority) neighbourhoods and populations? What is the role of enabling and protecting urban commons policies? (sustainability indicators)
- 3 What is the role of physical space in the emergence of commoning practices and what is the contribution of design agents in this regard? How can neighbourhood commons spaces be designed for place making?
- 4 How can existing theory and practical experiences of urban commons be combined into a tool to be used by local associations and design professionals on urban neighbourhoods, especially for the most socially and spatially disadvantaged?

Expected outcomes

A key result of this project is the development of an interdisciplinary, transferable tool for urban commons, targeting local associations and designers, with consideration for collaboration with local administrations. The development of the tool will draw from international cases, significantly informed by fieldwork during the secondment in Barcelona. Subsequently, the tool will be tested in Lisbon, specifically within the BIP/ZIP Participatory budget program. The research findings will contribute to the scientific discussion on commons and urban theory, as well as urban commons practices. Ultimately, it will aid local strategies, like the BIP/ZIP in Lisbon in effectively integrating urban commons qualities.

3.4.2. Literature review

Urban populations today are experiencing the consequences of a multifaceted crisis, in the form of uneven development, massive displacement, lack of affordable housing and gentrification, which is significantly attributed to the failure of the neoliberal state and market to manage urban resources in a sustainable way (Harvey, 1990; Konvitz, 2016; Lees, Shin and López-Morales, 2016). The housing issue, which has become increasingly prevalent, encompasses not only the availability and quality of sustainable housing but also extends its effects to neighbourhoods and urban areas, influencing various aspects of urban dwellers' everyday lives. The 'public' itself is being challenged by the privatisation and commodification of assets, gradually limiting the provision of quality services and spaces thereby amplifying spatial and social inequalities within the urban realm (Harvey, 2008).

Market dynamics tend to segregate societies into individual consumers with personal needs satisfied by purchasing products. Social welfare policies as well as urban regeneration programmes influenced by market dynamics, too often, tend to create social division according to age, class and cultural background in the name of equitable delivery of professional support fortifying the problem rather than the solution (Britton and Billings, no date). In response, citizen engagement processes in urban regeneration, such as community-led planning, unite urbanites under shared goals, ultimately fomenting citizenship and collective life. Although national and regional initiatives for citizen engagement are necessary, a focus on the local level in planning has been discussed to decentralise the power from national to the community level, allowing for concrete local action based on targeted deliveries locale by locale (Kaplan, 2022). This advances neighbourhood as an important scale of investigation, as playing a significant role in day-to-day life of the inhabitants, which is highly dynamic (Choguill, 2008). In this context, urban neighbourhoods frequently become the spatial foci of territorial development strategies based on social innovation and citizen participation. Municipalities globally develop integrated

territorial and cross-sectoral strategies, especially prioritising disadvantaged neighbourhoods, delivered by instruments of multi-level and multi-stakeholder cooperation (Eisenbeiß, 2016). Citizen engagement in urban governance has also a prominent role in international directives for sustainability to which local authorities commit, such as the UN Agenda 2030 (2015), the New Urban Agenda (United Nations (Habitat III), 2017) and the New European Bauhaus. Localisation of such visions into sustainable local development strategies aim at improving the quality of life of the population of a territory based on the use of endogenous potentials (Coffey and Polèse, 1984; Dawkins, 2003; Handayani, 2013), including economic, social, institutional, cultural and historical aspects (Common Provisions Regulation (EC) 1303/2013). The locally-based plans require a collaborative drafting (Milán-García et al., 2019) and aims at sustainable implementation (Mebratu, 1998; Amin, 2017), while prioritising the weakest regions (World Commission on Environment and Development, 1988; McChesney, 1991; Masika and Joekes, 2014), innovation (Vaz and Nijkamp, 2009; Naldi et al., 2015) (Haas, Meixner and Petz, 2016; Milán-García et al., 2019) and inclusivity.

As diverse “arenas” characterised by localised compositions, urban neighbourhoods are critical sites of social change that have the capacity to extend their influence throughout the city (Kaplan, 2022). Nonetheless, emancipatory initiatives emerging within the local sites of experimentation often have a great capacity, even greater than state-led programs, to mobilise a diverse spectrum of actors in participating in activities that foment urban cohesion and social development at urban, if not wider scale (Moulaert et al., 2010). In this respect, community led infrastructure at the neighbourhood scale developed through experimentation have been considered fundamental in tackling social challenges, while enforcing social bonds and social capital. Therefore, their safeguarding as well as promotion through protecting regulations emerges as a crucial matter (Kaplan, 2022). The notion of urban commons embodies such community led social infrastructure and has been used as the theoretical lens of analysis in the present research.

Urban commons initiatives emerge as a grassroots countermovement to the ‘commodification of urban life’ (Lain, 2015; Foster and Iaione, 2016), offering a radical ground wherein active citizens self-organise and reclaim fundamental for their sustenance resources and redefine their governance for social benefit rather than profit extraction. Within academic discourse, urban commons are urban resources that belong to everyone and are managed by their users in a prosocial way (Dellenbaugh et al., 2015). In this context, beyond resources, urban commons entail the people and institutions and the social practices (commoning) that activate and manage the resources. They originate from the notion of commons that traditionally pertain to natural common-pool resources, such as lakes or parcels of land, managed collectively by local communities to serve their needs while concurrently securing the sustainable use of the resources themselves. While the notion of commons dates back to the medieval times, when pasture lands were by law provided to peasants for common hunting and harvesting, it was for centuries linked to negative connotations, significantly reflected in Hardin’s (1968) ‘Tragedy of the commons’. In his work, Hardin claimed the impossibility to achieve sustainable management of resources without top-down regulations, arguing that in a commons settings individuals will eventually prioritise their private benefit, gradually causing the scarcity of the resource itself. This opinion shifted after Elinor Ostrom’s work (1990), who won the Nobel in Economics in 2009 for developing design principles for sustainable management of common pool resources, based on empirical research on successful cases. Ostrom further captured an Institutional Analysis and Development (IAD) Framework, encapsulating how collective institutions evolve over time. Ostrom’s Nobel in 2009, marked a renewed interest in the notion of commons that was further extrapolated in different domains, including the urban. Since then, scholarly discourses on urban commons, analyse the notion from different perspectives, linking it to other urban theories, such as the Right to the City (Lefebvre, 1996; Harvey, 2008), biopolitics (Linebaugh,

2008; Hardt and Negri, 2009; Angelis and Stavrides, 2010; Parr, 2015; Stavrides, 2015, 2016), peer-to-peer urbanism and sharing economy (Dellenbaugh-Losse, Zimmermann and De Vries, 2015; Iaione, 2015; McLaren and Agyeman, 2015; Shareable, 2018; Iaione, De Nictolis and Suman, 2019).

In the urban realm, commons-oriented initiatives manifest in a blossoming of sharing practices, be it physical infrastructure such as community gardens, urban agriculture, cooperative housing, public spaces as well as intangible or digital assets, such as knowledge sharing, energy collectives, car-sharing, open-source software (Hess, 2008; de Moor, 2012; Dellenbaugh-Losse, Zimmermann and De Vries, 2015; Petrescu, Petcou and Baibarac, 2016; Shareable, 2018; Urban Commons Research Collective, 2022). These practises demonstrate self-sustainable social mechanisms (Ostrom, 1990) and have been the subject of increasing research as providing sustainable alternatives of living in the city, contributing to resilience and social sustainability (Aloo, 2012; Alexiou et al., 2015; Petrescu, Petcou and Baibarac, 2016). The impactful management of urban commons focuses on re-owning the urban value (Borch and Kornberger, 2015) while largely depends upon horizontal qualities shared among citizens, building creativity, trust, solidarity and commitment despite conflict (Dellenbaugh-Losse, Zimmermann and De Vries, 2015). Such values fortify social cohesion in the cities and are therefore essential especially for the prosperity of priority communities and neighbourhoods.

The practical application of the emancipatory practices of urban commons within existing state and market conditions is a great challenge and subject to an ongoing debate between “anticapitalist” and “institutionalist” scholars (Huron, 2017). The former claim that since commons represent collective struggles of communities to emancipate themselves from the oppressive state and market dynamics through reclaiming their right to the city (Stavrides, 2016), they can only exist outside or beyond the state and market (Borch and Kornberger, 2015). The latter, explore the role of new types of institutional arrangements that are essential to facilitate the implementation of the ‘city as commons’ (Foster and Iaione, 2016), adopting multistakeholder governance structures that enable the development of collaboration pacts between different actors, prioritising citizens as experts in this process. In this context, commons-oriented policies and regulations are being populated in European cities, such as Bologna, Barcelona and Ghent (LabGov, 2014; Ajuntament de Barcelona, 2017; Bauwens and Onzia, 2017), reforming existing institutional structures with the objective of democratising urban governance and empowering citizens into the management of their neighbourhood common resources. Such progressive institutional contexts are key influential factors for the development and sustainability of neighbourhood commons spaces initiatives, as they provide not only spaces, funding, tools, technical support and other fundamental resources, but also secure enabling environments that promote the longevity of the initiatives. However, it is critical to examine the risks associated with the institutionalisation of such community-led neighbourhood initiatives, such as political control and bureaucratic limitations.

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3.5. Key emerging issues on “Community Participation”

Urban populations today face a multifaceted crisis, marked by uneven development, displacement, lack of affordable housing, and gentrification. These housing issues affect not only availability and quality but also neighbourhood dynamics, amplifying social and spatial inequalities through the privatization and commodification of public assets. Market dynamics often segregate societies and fortify social divisions through policies purported to deliver equitable support.

In response, citizen engagement in urban regeneration, particularly community-led planning, unites residents under shared goals and decentralizes power from national to local levels. This local focus is crucial for effective action and improving daily life, with municipalities developing integrated strategies for disadvantaged neighbourhoods through multi-level cooperation. Over the past decade, community participation has become increasingly important. However, concerns persist about the effectiveness and inclusivity of these efforts, highlighting the need for new perspectives and a stronger focus on the implementation stage.

The community-led housing movement aims to unravel the intricate relationship between architectural outcomes and social dynamics, employing the capabilities approach to analyse factors influencing collaborative housing. The findings aspire to inform inclusive housing policies. This shift towards community engagement raises questions about governmental intentions and the potential influence of citizens. Leadership dynamics and the role of training in building a community of practice emerge as key issues.

Fostering innovative collaborative governance for neighbourhood-level urban development, emphasizing citizen engagement, is crucial. Methods such as participatory action research through the Urban Living Lab approach help explore challenges in housing and social infrastructure from citizens' perspectives. To address urban challenges effectively, it is essential to foster a more equitable and cohesive urban environment. Integrating community knowledge and institutions into participatory development processes remains a significant challenge.

Urban commons represent a transformative approach to urban governance, emphasizing community engagement, social innovation, and sustainable resource management. These initiatives promote self-organization and resource reclamation by actively engaged citizens while grappling with the difficulties of implementing emancipatory practices within established institutional frameworks. The importance of shared social interactions and routines that take place in the same location, as well as the impact of governance on shaping the perception of neighbourhoods, are significant.

To tackle all these challenges, innovative techniques are needed to equip professionals with the necessary skills to foster sustainable community development. There is a need for a commons-based pedagogical framework for architectural housing studios. Analysing global good practices and contextual factors could help reshape architectural education. Incorporating participatory action research with students, the project envisions continuous collaboration, providing holistic learning experiences.

Architectural education that fosters community participation in an interdisciplinary manner is crucial for creating more inclusive, sustainable, and responsive urban environments. By integrating diverse fields such as urban planning, sociology, public policy, and finance, architectural education equips future professionals with a holistic understanding of the complex social, economic, and environmental factors that influence community dynamics. This interdisciplinary approach encourages students to engage with community members, understand their needs and aspirations, and co-create solutions that reflect the collective vision. It also promotes collaborative problem-solving and innovative design thinking, essential

for addressing contemporary urban challenges. Ultimately, fostering community participation through interdisciplinary architectural education helps build resilient communities and ensures that the built environment supports equitable and sustainable development.

The collective research efforts suggest that integrating diverse perspectives, considering factors such as environmental impact, affordability, and social inclusivity, is crucial for tackling the challenges involving community in designing and constructing affordable and sustainable housing. The main challenges in the area of community participation are understanding, empowerment, and reconciliation. To ensure the success and longevity of community participation, it is essential to grasp their intricate spatial dynamics, including organization, working dynamics, and design effects. Achieving sustainable and affordable housing requires empowering communities to find practical housing solutions. To prepare professionals effectively, it is necessary to bridge the gap between architectural housing studios and the practical challenges of providing affordable and eco-friendly housing by adopting a commons-based approach. This poses a significant challenge for urban planning research.

4. Challenges in “Community Participation”

The account provided in previous sections offers an overview of some key issues intertwining design, planning, and building, primarily from a scholarly perspective. However, a transdisciplinary approach to affordable and sustainable housing must encompass non-academic stakeholders who can contribute to identifying and solving housing problems with their knowledge and experience. This necessitates that researchers articulate their findings in language understandable to non-experts, facilitating dialogue with them.

With this purpose in mind, researchers were tasked with identifying key challenges in a manner that integrates issues from various experts on contemporary and affordable housing, making these challenges understandable to a broad audience. This exercise allows them to apply the knowledge acquired in RE-DWELL courses focused on research methods and transferable skills.

The challenges presented in the following sub-sections are derived from the knowledge accumulated by researchers throughout their research journey, including secondments, courses, vocabulary, and case studies (Table 2). These challenges encompass a variety of topics, such as energy poverty, building retrofitting, and social housing, spanning various dimensions—environmental, social, economic, and institutional—and operating at different levels, ranging from individual buildings to neighbourhoods, municipalities, metropolitan areas, and regions. They involve different actors and apply diverse methods and tools.

4.1. Long-term engagement of actors in municipality-citizens collaboration toward sustainable neighbourhood development

There is a proliferation of experiments exploring collaborative knowledge building and innovation in urban development. Processes aiming to meaningfully involve all relevant stakeholders, are especially found in Urban Living Labs (ULL) established as platforms for using the approach of co-creation. However, it is quickly becoming apparent how difficult it can be to ensure the long-term engagement of the relevant actors. This observation is confirmed by the existing literature in the realm of participatory planning which states that one of the main challenges in establishing collaborative arrangements between a local authority and community stakeholders is to ensure their commitment to the process. From firsthand experiences, while promoting and running ULL workshops, pre-existing institutional arrangements are found to largely determine the ways in which both municipal and community actors perceive the benefits of collaboration and what the expected outcomes might be. In other words, existing mechanisms which have created barriers to collaboration in the past, negatively affect the level of trust between these actors. This has unavoidable implications in the power imbalances that reappear in efforts to encourage community engagement in neighbourhood planning and regeneration. The establishment of an ongoing relationship with the municipality is expected to be one of the potential antidotes to the above challenge, solidifying the long-term engagement of community representatives and respectively, establishing improved accountability of the local authority who hold responsibility regarding housing and social infrastructure at the local level.

4.2. Reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach

The traditional housing studio model disconnects students from current societal realities, fostering self-reference and skewing the importance of spatial matters. While live studio methodologies aim to redefine the architect’s role, their limited global implementation

perpetuates the gap between education and practice. To address this issue, we need to rethink pedagogical methods and the university's role in bridging this gap. Embracing a commons-based approach to knowledge production transforms it into continuous collaboration among diverse stakeholders, including residents, organizations, and academics. This fosters a rich learning environment enhanced by ongoing discussion and renegotiation. Such an approach is essential for engaging with and addressing complex real-world challenges related to affordable and sustainable housing across different domains.

4.3. Supporting community engagement in the development of community-lead initiatives

Supporting community engagement in developing community-led housing that responds to their needs is an important aspect of sustainable urban development. Empowering communities to take an active role in initiating, cocreating, rehabilitating, or managing their housing initiatives is essential. This ensures that the resulting solutions align closely with the requirements and aspirations of residents, fostering a sense of ownership. Furthermore, as it is an approach that focuses on the group and not the individual it encourages social cohesion, a stronger sense of belonging, opportunities for integration, and mutual support. Effective community engagement in housing development involves a collaborative process, where residents actively participate in the decision-making, and perhaps even in the design, and implementation. This can lead to more sustainable, affordable, and innovative housing solutions that have the potential to create a positive impact on the neighbourhood scale and improve overall living conditions. It also promotes a deeper understanding of local issues and fosters social capital, ultimately enhancing the quality of life for community members. Balancing the needs and desires of the community with regulatory and financial constraints is a demanding challenge, with the potential to transform neighbourhoods and empower residents to shape their living environments.

4.4. Limited understanding of the contribution of space in the success of urban common initiatives

Community-run neighbourhood spaces, such as community centres and gardens foster sustainable forms of living while having socio-spatial implications on the construction of the city. However, while their spatial qualities and dynamics are key for their success and sustainability, it remains an understudied matter in urban planning research. This challenge entails questions regarding spatial organisation and the impact of design on these initiatives. On a wider scale, their spatial integration within urban landscapes, their proximity to residences, and ease of use can profoundly influence community commitment. Reversely, spatial requirements and potential conflicts in densely populated urban areas pose significant challenges in their survival. Recognizing the importance of space in urban commons initiatives is critical for community organisations, as well as urban planners, policymakers, and researchers striving to create self-sustainable urban communities.

Table 2. Challenges focusing on the area “Community Participation” and related components of the transdisciplinary research framework

Challenges	Actors	Methods	Tools	Related Vocabulary	Related Case Studies
Long-term engagement of actors in municipality-citizens collaboration towards sustainable neighbourhood development (ESR 8)	Housing authorities		Interdisciplinary collaboration	Co-creation Collaborative Governance	Self-Organisation in a New Dutch Suburb: Housing development in Oosterwold Participatory Planning: Re-examining Community Consultation as a process that integrates the Urban Room method with a digital mapping tool
Reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach (ESR 9)	Architects and designers Local associations Local communities Local government Residents Universities	Knowledge co-creation Transdisciplinary approaches	Transdisciplinary collaboration	Co-creation Sustainability	Rural Studio DARE to Build, Chalmers University of Technology
Supporting community engagement in the development of community-lead initiatives (ESR 10)	Architects and designers Civil society organisations Housing authorities Local associations Local communities Non-profit organisations Policy makers Residents	Empirical validation Interdisciplinary collaboration Interviews Knowledge co-creation Participatory action research Policy reform	Capacity Building Transdisciplinary collaboration Workshops	Community Empowerment Community-led housing	Mehr als wohnen – More than housing La Borda

Challenges	Actors	Methods	Tools	Related Vocabulary	Related Case Studies
Limited understanding of the contribute of space in the success of urban common initiatives (ESR 13)	Architects and designers Community builders Local associations Local communities Urban planners	Interviews Taxonomy	Framework Indicator development Spatial analysis Survey	Placemaking Public-civic Partnership	Navarinou Park LiLa4Green

4.5. Cross-cutting challenges

The identified challenges form a complex web of interconnected issues in the realms of community engagement, local authority collaboration, and urban commons awareness. Supporting community engagement is crucial for inclusive decision-making processes, but it requires overcoming barriers such as power dynamics and historical marginalization. Achieving cooperation between local authorities and residents demands navigating bureaucratic hurdles and promoting transparent communication channels. Simultaneously, fostering awareness of urban commons initiatives underscores the importance of community-driven efforts in shaping sustainable neighbourhoods.

In tandem with these challenges, the need to renew the education of future architects emerges as a key theme. Traditional architectural education often falls short in addressing real-world challenges, such as affordable and sustainable housing provision. The evolving urban landscape demands architects equipped with interdisciplinary skills, a deep understanding of community dynamics, and an awareness of the potential of urban commons. Ultimately, architects can play in fostering sustainable and affordable housing through proactive engagement with communities and a renewed educational framework.

The actors, methods, and tools identified in the exploration of community participation weave an intricate tapestry of interconnected issues within the housing domain and underlines the multifaceted nature of collaborative processes in sustainable housing development. Recognizing the diverse range of stakeholders involved, from inhabitants, civil- and non-profit organizations to local authorities, policy makers and architects, reflects the complexity of decision-making in urban development. This diversity requires a nuanced approach that accommodates varied perspectives and interests, fostering a more inclusive and comprehensive understanding of community needs.

The set of methods and tools targeting these diverse actors serves as a bridge, facilitating communication and collaboration among inhabitants, policy makers, and architects. These methods act as a shared language, helping to establish common ground and fostering mutual understanding. In doing so, they illuminate the potential for collective action towards more sustainable housing solutions. The tools embedded within these methods play a crucial role in enabling effective communication, negotiation, and the realization of envisioned outcomes. These tools not only streamline the collaborative process but also empower stakeholders to actively engage in shaping their built environment. In essence, the emphasis on diverse actors and versatile tools highlights the dynamic potential for co-creation and collective efforts in the pursuit of sustainable and inclusive housing.

5. Interconnected challenges across three research areas

After identifying challenges derived from the research projects which interrelate projects within the area of “Community Participation”, the final step is to interrelate these challenges to others from the two areas, “Design, Planning, Building” and “Policy and Financing” (Table 3).

In the following subsections, we present potential relationships between the challenges focused on “Community Participation” and challenges from the other two research areas (Tables 4-7). Additionally, we illustrate the connections between these challenges and other components of the transdisciplinary framework (see Deliverable 4.6), such as actors, methods, tools, vocabulary entries, case studies, and secondments. These relationships are visualized in a diagram. These relationships are visualized in a diagram and explained in a short text.

The diagrams have been created using a common graphic language and set of components to provide a detailed view of a complex problem. Beyond this, there is no mechanism underlying the generation of the diagrams other than the researchers’ knowledge. Therefore, these representations convey a personal understanding of a multifaceted issue in a language that facilitates further dialogue and exchange with other researchers. In this regard, the knowledge encapsulated in the diagrams can be particularly meaningful for addressing specific real-world problems related to affordable and sustainable housing, involving the relevant actors (see Deliverable 4.7).

Table 3. Challenges in the three research areas

Design, Planning, Building	Community Participation	Policy and Financing
Integrating design for disassembly principles with industrialised construction practices to reduce the embodied carbon impacts of housing over the building lifecycle	Long-term engagement of actors in municipality-citizens collaboration towards sustainable neighbourhood development	Lack of political will
Lack of early integration of resident stakeholders in housing retrofit, which potentially yields benefits such as cost savings, reduced performance gaps, and increased social value	Reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach.	Breaking down the silos between disciplines and create supportive and effective housing for people with complex needs
The underutilisation of Life Cycle Costing (LCC) for households often leads to oversights in investing in tangible features that positively impact residents' health and financial wellbeing in the long term	Supporting community engagement in the development of community-lead initiatives	Lack of knowledge on targeted policy instruments to alleviate energy poverty
The complexity of the regulatory framework governing the sustainability of social housing	Limited understanding of the contribution of space in the success of urban common initiatives	Improving access to capital market for social housing organization green and social financing instrument
Meeting the diverse range of needs in multi-family housing within an affordable and sustainable framework through mass customisation strategies		Unlocking the full potential of the Social Value Act and analogue regulations in the housing sector

5.1. Long-term engagement of actors in municipality-citizens collaboration towards sustainable neighbourhood development (ESR8)

The absence of political determination among housing sector decision-makers exacerbates the difficulty of maintaining long-term stakeholder engagement. This impacts both local authorities and policymakers responsible for addressing affordable housing issues. Furthermore, pre-existing institutional arrangements significantly influence collaboration between municipal and community actors, leading to trust barriers and power imbalances that hinder sustained community representation. Additionally, the lack of accountability of local authorities complicates community engagement efforts. Focus groups provide a valuable platform for various stakeholders to contribute insights into local housing and urban development issues. To address these challenges, influential actors must take decisive steps to surpass institutional obstacles and embrace transdisciplinary approaches to policymaking (Table 4, Figure 4).

Table 4. Possible links to challenges from other research areas

Design, Planning, Building	Community Participation	Policy and Financing
	Long-term engagement of actors in municipality-citizens collaboration towards sustainable neighbourhood development	The lack of political will
	Supporting engagement to develop community-led housing initiatives	

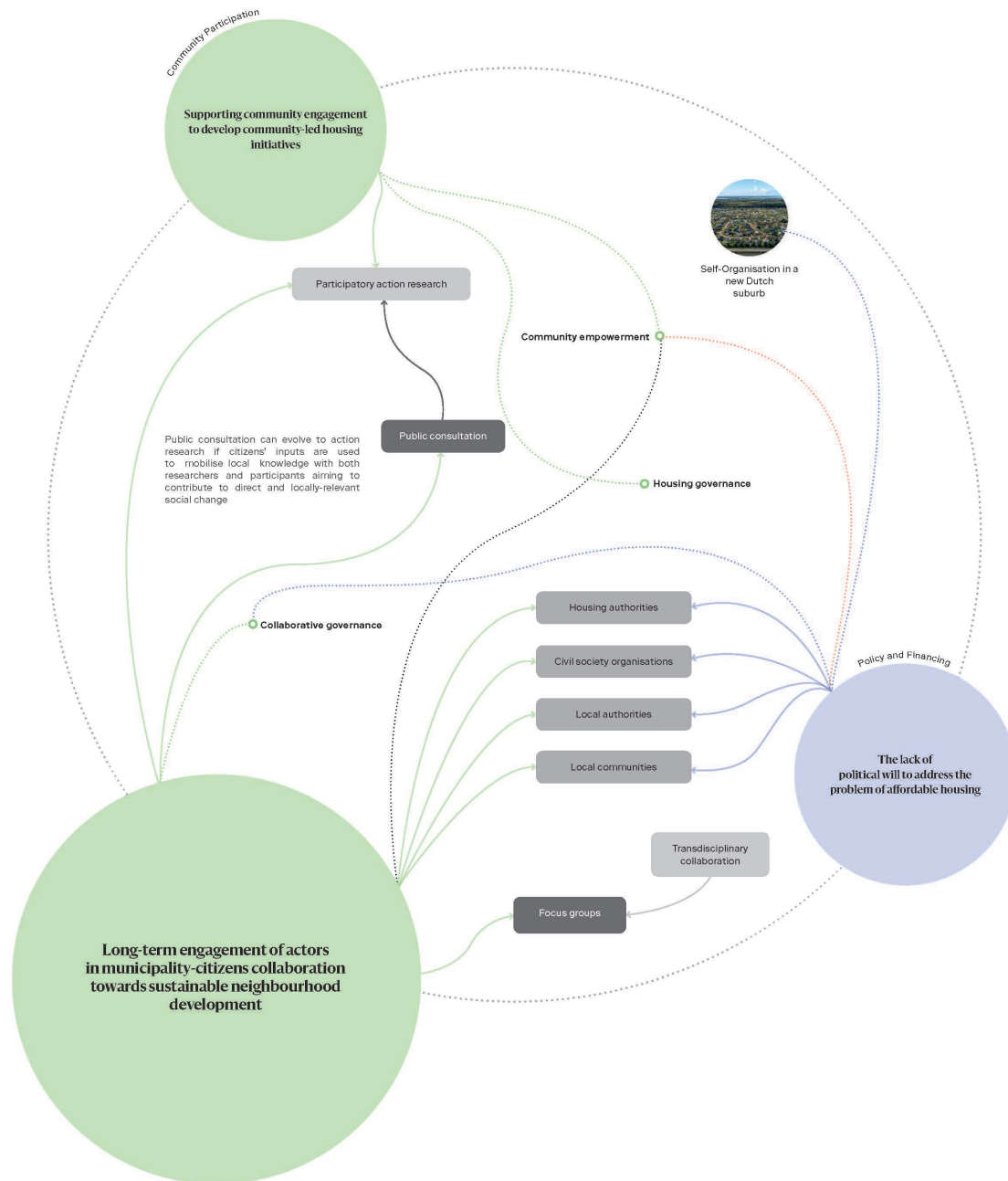


Figure 4. Connections between the challenge and other components of the transdisciplinary framework

5.2. Reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach (ESR9)

Closing the gap between housing studio education in architecture and the real – world challenges of providing affordable, sustainable housing is crucial for preparing future design and planning professionals to navigate complex socio-political and economic landscapes. A collaborative housing education supports grassroots initiatives, fostering active citizenship among future professionals who will contribute to sustainable, inclusive urban environments. Introducing a commons-based paradigm within the housing studio, breaking disciplinary boundaries, is essential to foster collaborative and equitable knowledge production and learning process. Through close cooperation in the form of co-design and co-build workshops aimed at addressing existing socio-spatial problems, all participants engage in prefigurative, rather than symbolic action, catalysing empowerment for local communities and students alike. Scholars and educators, using methods like participatory action research, play a pivotal role in implementing these collaborative housing design studios (Table 5, Figure 5).

Table 5. Possible links to challenges from other research areas

Design, Planning, Building	Community Participation	Policy and Financing
The complexity of the regulatory framework governing the sustainability of social housing	Reconciling the gap between housing studio education in architecture and real-world challenges in affordable and sustainable housing provision through a commons-based approach	Breaking down the silos between disciplines and create supportive and effective housing for people with complex needs
	Supporting community engagement to develop community-led housing initiatives	

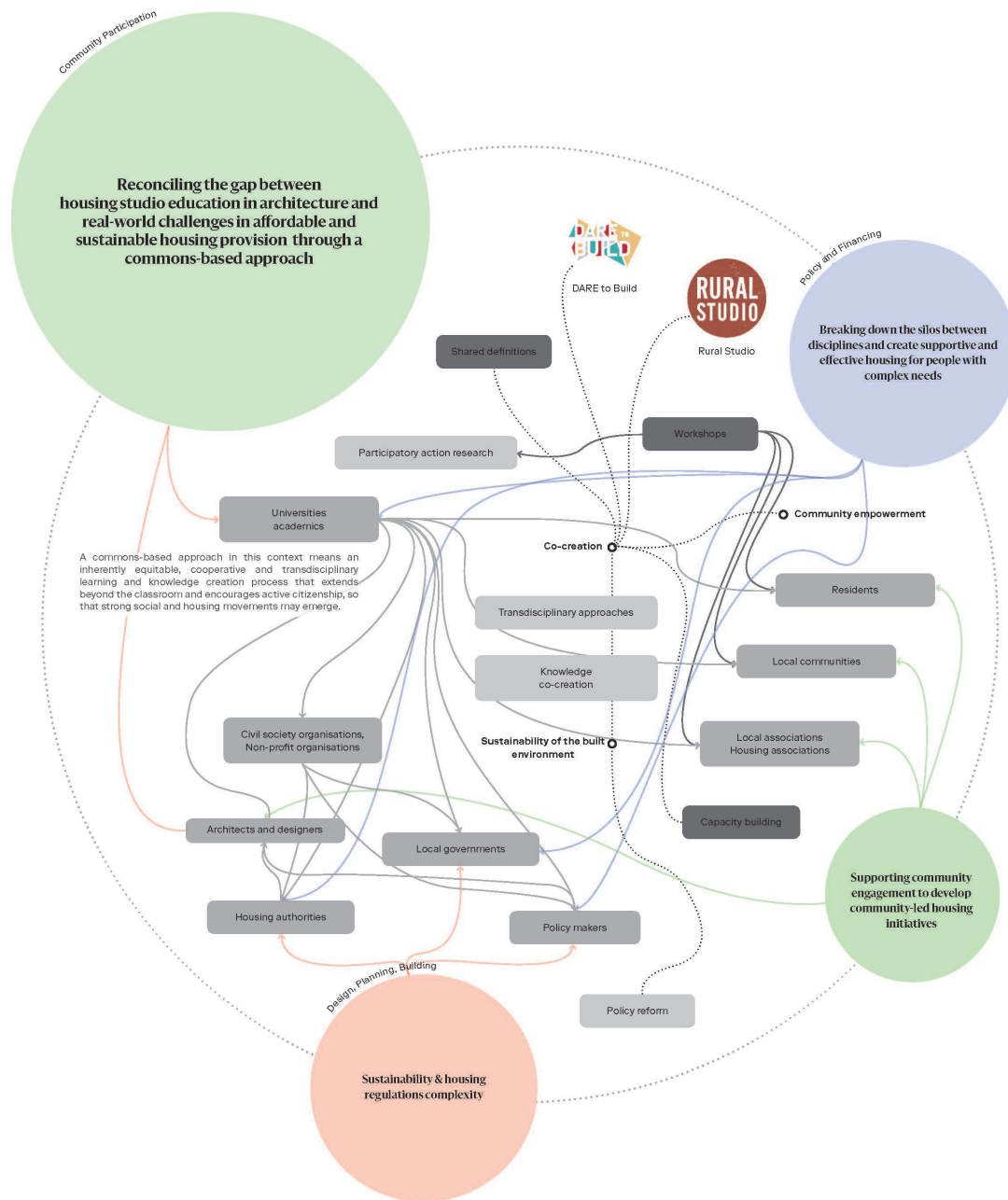


Figure 5. Connections between the challenge and other components of the transdisciplinary framework

5.3. Supporting community engagement in the development of community-lead initiatives (ESR10)

Supporting the participation of residents in the creation of community-led housing projects is a critical strategy for addressing deficiencies in the provision of affordable housing, which are exacerbated by a lack of political will. By collaborating with civic society organizations and fostering capacity-building initiatives, it is possible to empower vulnerable groups marginalized from adequate housing options. Community-led endeavours offer a conduit for repurposing vacant structures, thereby opening an important channel for collaborating with architects and designers to innovate through participatory workshops, such as those employing design for disassembly principles. Citizen involvement can extend from the building to the neighbourhood scale, involving them in collaborative planning processes. Researchers can play an important role in supporting this pathway by actively engaging with local communities through participatory action research. Through transdisciplinary collaboration and the cocreation of knowledge, researchers can contribute to the collective effort of building more inclusive and resilient communities (Table 6, Figure 6).

Table 6. Possible links to challenges from other research areas

Design, Planning, Building	Community Participation	Policy and Financing
Integrating design for disassembly principles with industrialised construction practices to reduce the embodied carbon impacts of housing over the building lifecycle	Supporting community engagement in the development of community-lead initiatives	The lack of political will
	Access to housing for vulnerable groups	Reusing vacant building for housing
	Long-term engagement of actors; citizen collaboration towards sustainable neighbourhood development	

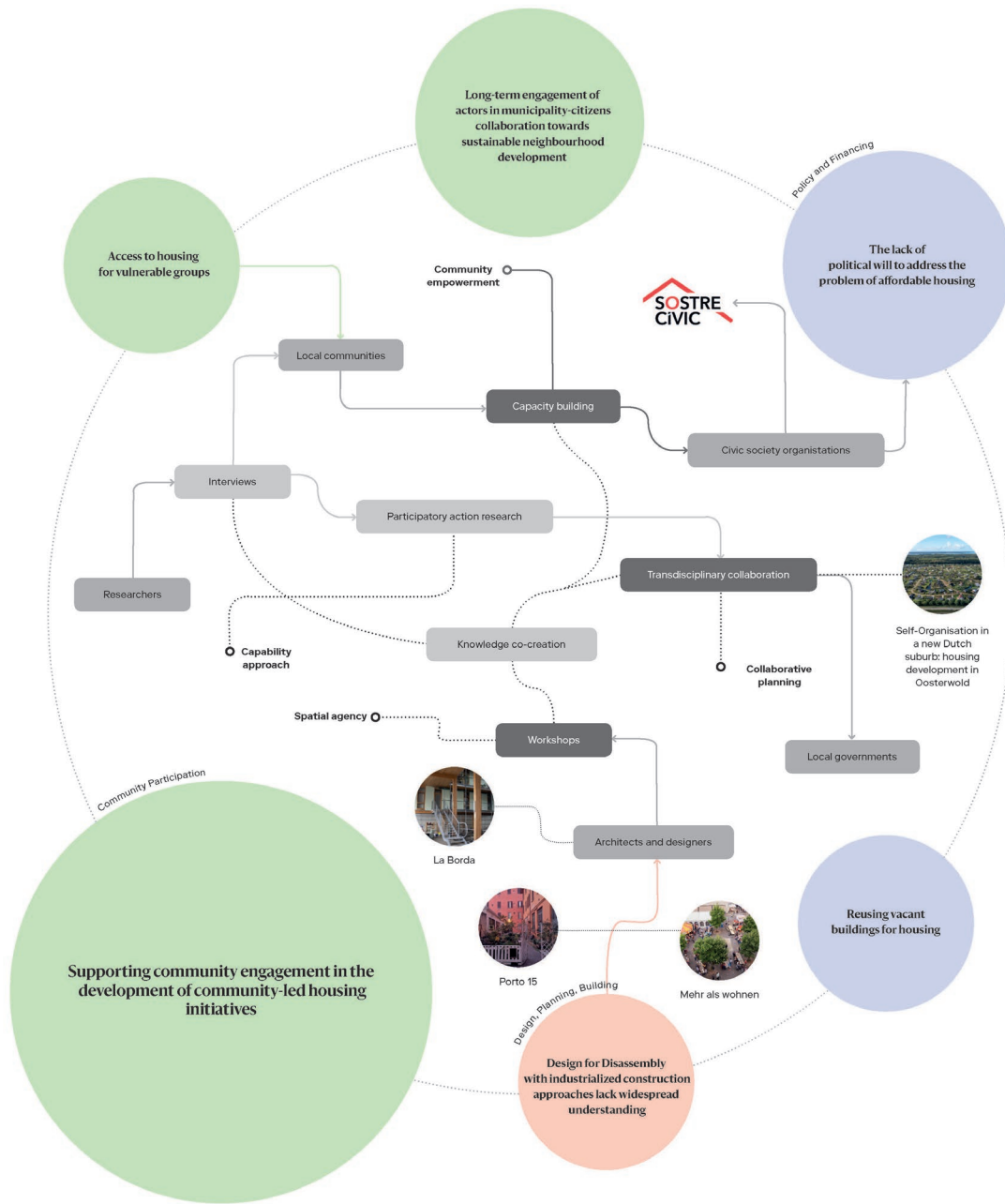


Figure 6. Connections between the challenge and other components of the transdisciplinary framework

5.4. Limited understanding of the contribution of space in the success of urban common initiatives (ESR I3)

Exploring the importance of space in urban commons endeavours is crucial for a range of stakeholders, including community organizations, local associations, urban planners, designers, policymakers, and researchers striving for sustainable urban neighbourhoods. Understanding the spatial dynamics and design principles within these initiatives, such as flexibility and adaptability, necessitates various theoretical perspectives and grounded theory methods, including observation in exploratory case studies, spatial analysis, and interviews to gather primary data, which is then summarized in a taxonomy. By involving the community in data collection, we can gain insights into spatial requirements and design considerations that align with community needs and preferences, empowering residents and creating social value through collaboration between residents, municipalities, and experts. Furthermore, understanding how spaces are designed and utilized can enhance inclusivity and accessibility for all community members and especially the most disadvantaged. In the context of urban commons initiatives, public-civic partnerships can bring together expertise from various fields, such as urban planning, architecture, sociology, and community development, to work towards common goals. Lastly, prioritizing local communities and residents as the primary focus challenges architects and designers to enhance their design toolboxes with socially oriented, measurable qualities and place-based tools, such as placemaking (Table 7, Figure 7).

Table 7. Possible links to challenges from other research areas

Design, Planning, Building	Community Participation	Policy and Financing
Integrating design for disassembly principles with industrialised construction practices to reduce the embodied carbon impacts of housing over the building lifecycle	Limited understanding of the contribution of space in the success of urban common initiatives	Breaking down the silos between disciplines and create supportive and effective housing for people with complex needs
Underutilisation of Life Cycle Costing (LCC) for household favours often leads to oversights in investing in tangible features that impact residents' health and financial wellbeing in the long term		
Lack of early integration of resident stakeholders in housing retrofit to yield benefits such as cost savings, reduced performance gaps, and increased social value		

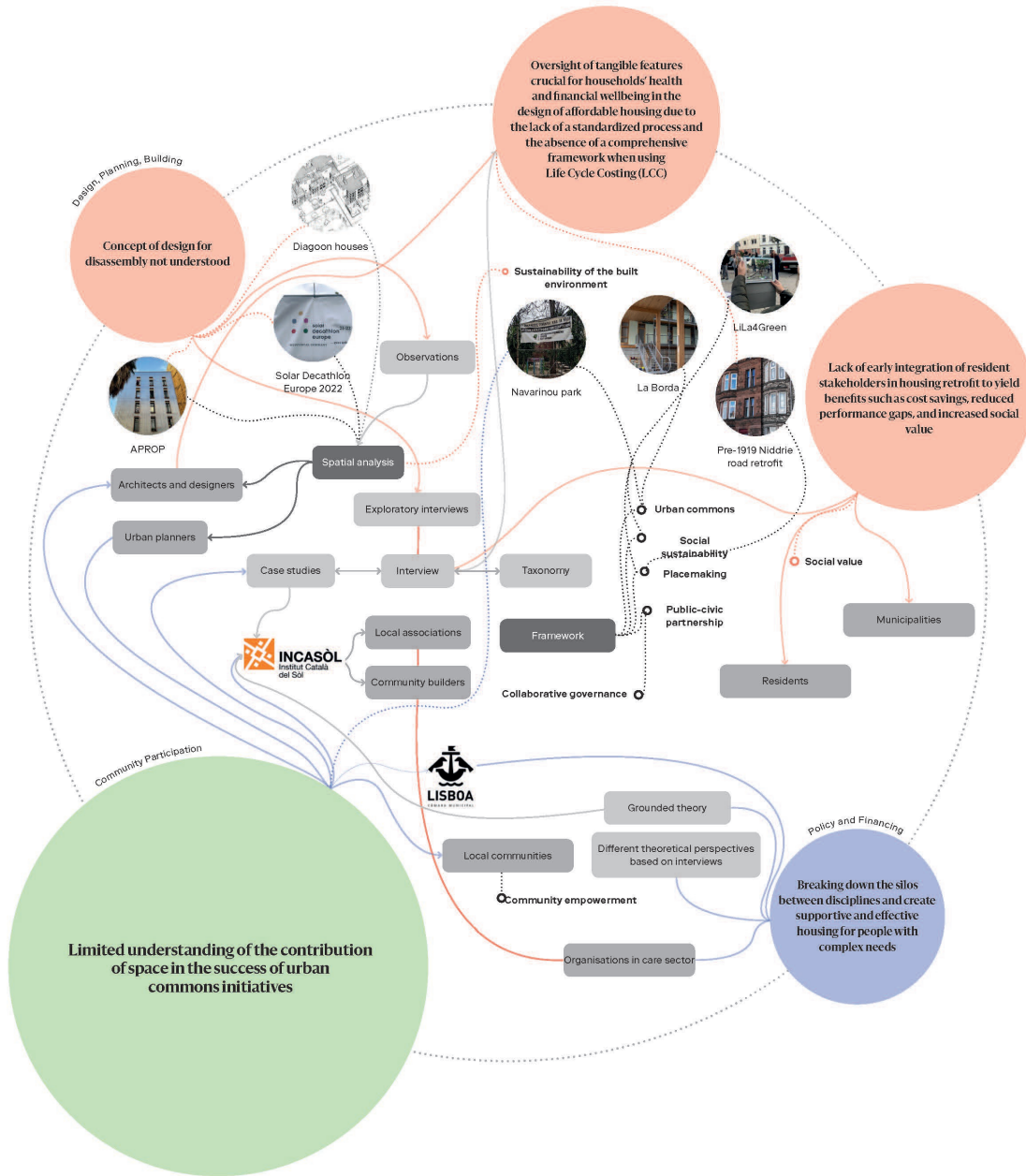


Figure 7. Connections between the challenge and other components of the transdisciplinary framework

6. Directions for future research

Community participation is crucial for achieving affordable and sustainable housing. As urban populations grow and environmental challenges intensify, integrating community voices in housing solutions becomes increasingly important. Future research must delve deeper into the multifaceted nature of community involvement, addressing emerging challenges, and exploring innovative approaches to foster more inclusive and resilient urban environments. This involves a holistic examination of how community participation intersects with architectural design, building practices, policy-making, and financing.

Expanding the scope of community participation is crucial for fostering inclusive, sustainable urban development. It ensures diverse perspectives are integrated into architectural design, policy-making, and financing, enhancing social cohesion and equity. Active community involvement leads to better-tailored solutions, increases public trust, and empowers citizens, ultimately contributing to resilient, adaptive, and vibrant communities that meet the evolving needs of all residents.

- **Diverse community engagement:** The methodology of community participation has become increasingly sophisticated and diverse, yet further methods must be developed to effectively engage people living in poor housing conditions. It is essential to involve diverse community groups, particularly marginalized populations, in architectural and urban design processes to ensure inclusive and equitable outcomes. Understanding the barriers to participation for these groups and developing strategies to overcome them is essential. This includes studying the impact of socio-economic status, cultural background, and language barriers on participation rates and effectiveness.
- **Technology and digital participation:** The role of technology in facilitating community participation in the design and planning phases deserves more attention. Research should explore how digital platforms can enhance engagement, provide accessible information, and enable real-time feedback on architectural and building projects. Additionally, examining the digital divide and ensuring equitable access to these technologies is crucial for broad-based community involvement.
- **Longitudinal studies on participation impact:** Long-term studies that track the outcomes of community participation over time can provide valuable insights into its effectiveness. These studies should measure the impact on housing affordability, sustainability, social cohesion, and residents' quality of life. Understanding the longevity and scalability of successful participatory models can guide future architectural and policy initiatives.

Enhancing participatory processes: By involving diverse community groups, especially marginalized populations, in decision-making, we can ensure that architectural and urban design solutions address the needs of all residents. This leads to more sustainable and resilient communities, improved social cohesion, and the empowerment of individuals to shape their living environments.

- **Participatory Action Research:** Future research should expand the use of Participatory Action Research to include a broader range of stakeholders in the architectural design and urban planning process. PAR not only involves community members but also empowers them to take an active role in research and decision-making. Examining the effectiveness of PAR in various contexts can highlight best practices and potential pitfalls.
- **Evaluating governance structures:** Investigating the role of different governance structures in facilitating or hindering community participation is vital. Comparative

studies of cities or countries with varying degrees of decentralization can reveal how local governance impacts community engagement. This research can inform policy recommendations for creating more supportive governance frameworks that enable effective community participation in architectural and building projects.

- **Co-creation and co-design:** Exploring co-creation and co-design methods in urban planning and housing projects can lead to more inclusive and responsive solutions. Future research should document case studies where these methods have been successfully implemented, analysing the processes, outcomes, and lessons learned. This can provide a blueprint for integrating community input from the initial design phase through to construction and implementation.

Addressing emerging challenges: As cities grow and change, new problems such as climate change, technological advancements, and socio-economic disparities arise. Tackling these challenges through participatory approaches enables communities to adapt, innovate, and develop resilient solutions that promote sustainable and inclusive urban development for all residents.

- **Climate change and resilience:** As climate change increasingly impacts urban areas, research must focus on how community participation can enhance resilience. Studies should examine community-driven initiatives for disaster preparedness, climate adaptation, and sustainable resource management. Understanding the role of local knowledge and collective action in building resilient communities and structures is crucial.
- **Economic viability and funding models:** Investigating sustainable funding models for community-led housing projects is essential. Research should explore public-private partnerships, community land trusts, and cooperative housing models to identify viable economic frameworks that support long-term affordability and sustainability. Analysing successful case studies can provide insights into effective financial strategies that integrate community participation in the development process.
- **Policy integration and institutional support:** Future research should focus on how policies at various levels of government can support community participation. This includes studying the integration of participatory processes into urban planning regulations, housing policies, and development frameworks. Identifying institutional barriers and facilitators can help craft policies that encourage active community involvement in architectural and building decisions.

Cross-disciplinary approaches: By combining insights from architecture, urban design, policy, and finance, these approaches address complex urban challenges more effectively. They foster collaboration among various stakeholders, ensuring that community-driven initiatives are well-rounded, sustainable, and equitable, ultimately enhancing the quality of life for all community members.

- **Interdisciplinary research teams:** Forming interdisciplinary research teams that bring together urban planners, architects, sociologists, economists, and environmental scientists can provide a holistic understanding of community participation. These teams can address the complex interplay between social, economic, and environmental factors, leading to more comprehensive solutions that are reflective of community needs.
- **Collaborative international research:** Comparative international research can offer valuable insights into diverse participatory practices. Collaborative projects between researchers from different countries can help identify universal principles and context-specific strategies. This global perspective can enrich the understanding of community

participation and inform adaptable models that integrate community insights into architectural design and policy frameworks.

The future of community participation research lies in its ability to adapt to emerging challenges and leverage new opportunities. By expanding the scope of engagement, enhancing participatory processes, addressing pressing issues, and embracing cross-disciplinary approaches, researchers can contribute to more inclusive, sustainable, and resilient urban environments. These efforts will not only improve housing affordability and sustainability but also empower communities to shape their own futures through integrated design, policy, and financial strategies.