



Citizen Participation in Sustainable Urban Development

A Framework for Engagement
from the Nordics

Edited by

**Tuomas Ahola, Nina Tura,
Ville Ojanen and Agnar Johansen**



CITIZEN PARTICIPATION IN SUSTAINABLE URBAN DEVELOPMENT

This book assesses the ambitious goals for sustainability set by cities and nations and details ways to achieve those goals through effective forms of collaboration between citizens and multiple stakeholders, such as municipal decision-makers, entrepreneurs, and academic researchers.

Each chapter discusses how citizens are currently involved in urban development and what opportunities there are for further deepening the collaboration in the context of urban development between citizens and municipalities. Cases from the Nordics focus on the adoption and use of digital technologies in the provision of municipal services as well as in citizen participation. The book presents the state of the art in scientific research in the field, practical examples from multiple case studies of sustainable urban development initiatives, as well as key themes for moving the discourse forward in the future. It is essential for academics, students, researchers, policymakers, urban planners, and professionals working in the areas of sustainability, urban development, and citizen engagement. It will also be relevant to citizen groups, community organisations, and activists who are interested in advocating for and participating in the development of smart and sustainable cities, particularly in Nordic countries.

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1

ENGAGING CITIZENS IN SUSTAINABLE URBAN DEVELOPMENT

Building inclusive and resilient cities through multidisciplinary approaches

Nina Tura, Tuomas Ahola, Ville Ojanen and Agnar Johansen

Introduction

In August 2018, Greta Thunberg, a 15-year-old Swedish schoolgirl, made it visible that despite the age, many citizens are highly motivated to participate in the development towards a more sustainable future. Her decision to skip school and protest in front of the Swedish parliament marked the beginning of an international youth climate movement that has since raised the attention of millions of individuals across the planet. Although the actions increased the voice of the citizens, they also highlighted the lack of processes through which citizens can effectively participate in decision-making processes at both the municipal and national levels. This note drove the planning and implementation of the project “Citizens as Pilots of Smart Cities (CaPs)” 2020–2024, which NordForsk funded under the Nordic Programme of Sustainable Urban Development and Smart Cities. The main aim of the CaPs project was to advance the knowledge of smart and sustainable urban development based on citizens’ ideas and inputs. The project was a collaborative effort between universities in Finland (Tampere University, LUT University), Norway (Norwegian University of Science and Technology), and Denmark (Copenhagen Business School), and municipalities of Tampere, Tuusula, Lappeenranta, Copenhagen, Lier, Oslo, and Trondheim. This book combines the latest research from and beyond the project by focusing on the learnings from the Nordics.

Sustainable urban development means urban planning and development aiming for cities that use resources effectively, minimize the environmental impact of human activity, and improve the quality of life of its citizens (Bibri & Krogstie, 2017; Yigitcanlar & Teriman, 2015). In practice,

this means developments in, for example, housing, public transportation, the creation of green public spaces, business opportunities, and improving urban planning and management in participatory and inclusive ways (United Nations, 2018). Municipalities develop services and infrastructure guided by explicitly stated sustainability goals, including carbon neutrality and increased well-being of citizens. In the Nordic context, sustainable urban development is concentrated within municipalities and often conducted in an urban development project form (Buzási et al., 2021). For instance, to reduce its carbon footprint, Oslo has drastically reduced the number of cars in its centre and converted parking spaces to bike lanes and pedestrian walkways. Similarly, user-friendly digital contact models between citizens and social services are being developed in Copenhagen to improve economic efficiency of welfare services. In Finland cities, including Tampere and Lappeenranta, have introduced and applied the principles of participatory budgeting to their residents and thus enabled them to contribute to idea generation, planning, and implementation of sustainable urban development projects that would improve their well-being as citizens. Unfortunately, many of these developments have a downside as well. For instance, digitalization of public services has also been observed to pose the risk of marginalizing citizens that do not know how to access and/or effectively utilize these new digital solutions (Eubank, 2018). As stated by Schmidt in Chapter 11, there is a need to consider the needs of those more vulnerable groups of citizens also in urban development, so no-one would not be left behind. To avoid, or at least reduce, negative outcomes, novel methods are needed to engage and educate citizens in sustainable urban development (Tura & Ojanen, 2022). Cities should support education, creativity, and knowledge-sharing to drive impactful, sustainable innovations (Trencher & Karvonen, 2019) and ensure diverse groups' engagement (Shin et al., 2021). However, cities must avoid relying on top-down engagement methods, which are likely to lead to superficial participation or "tokenism" (Kamols et al., 2021). Instead, a "middle-out approach," combining top-down and bottom-up methods – such as "pop-up interventions" – can promote genuine, systemic change (Fredericks et al., 2019).

The central challenge is to understand how to effectively support smart and sustainable urban development that genuinely incorporates the ideas and other inputs of citizens. While technological innovations and urban planning strategies are essential, the real transformation lies in creating participatory processes – and specific methods used in these processes – that empower citizens to shape the future of their cities. This requires overcoming barriers to engagement, ensuring inclusivity, and fostering a collaborative approach that integrates diverse voices in meaningful ways. Understanding how to bridge

these gaps will be crucial in building resilient, citizen-centred cities that are both sustainable and equitable.

Conceptual overview: Citizen participation in sustainable urban development

Recently, researchers have increasingly focused on smart and sustainable urban development, with the aim of combining insights from more technologically oriented smart city approaches and sustainable cities, emphasizing the economic, ecologic, and social sustainability of urban development (Bibri & Krogstie, 2017). While this emerging stream of research shows considerable promise in balancing between economic as well as sustainability interests in urban development, it does not yet adequately address the role of citizens in the development of smart and sustainable cities of the future. Indeed, while the role of technological development and urban planning has been placed considerable emphasis, citizens have predominantly been considered as somewhat passive recipients of smart services (Hall et al., 2000; Marsal-Llacuna et al., 2015) instead of active participators – or even pilots of urban development. Consequently, our view on smart and sustainable urban development is that technology has an enabling role as it supports efficiency and optimization. While technology is a key enabler of innovative and new smart and sustainable concepts, these concepts are – and increasingly should be – generated through combining the creative ideas and contributions of multiple individuals, that is, the citizens.

To increase the rate of smart and sustainable city development across Nordic municipalities, policymakers and municipal actors need to thoroughly understand the *barriers to participation facing different citizen groups*. These barriers include, for example, a lack of effective tools for voicing citizens' concerns. Planning of investments in infrastructure is frequently carried out in complex networks involving organizational actors as well as individual citizens (Ahola, 2018). Within such networks, the creation of economic, environmental, as well as societal value is contingent upon the ability of multiple heterogeneous stakeholders to engage in a process of co-production – instead of a zero-sum game where each actor is only concerned by its own value outcomes (Ahola et al., 2017; Artto et al., 2016). The literature on investment projects has identified several barrier factors that may lead to the de-coupling of citizens from relevant planning processes in societally significant investments, such as hospitals, schools, and other municipal infrastructure. These barriers relate, for example, to lack of technologies and processes supporting participation (Liu et al., 2019), interests of powerful actors such as the project owner to control the goal-setting process (Fuentes et al., 2019), and lack of motivation of end-users, or certain end-user groups to participate (Wang et al., 2011). Earlier research has also shed light on the harmful effects of not

4 Citizen Participation in Sustainable Urban Development

involving citizens in relevant urban development decision-making processes. For example, public infrastructure investments often fail to meet the demand estimates their funding decisions are based on (Flyvbjerg et al., 2003). In addition, public infrastructure has often been criticized for lacking the flexibility to respond to the changing needs of citizens (Gersonius et al., 2013).

To overcome the risks and barriers to smart and sustainable urban development, there also exist *different mechanisms, supporting tools, and processes for engaging different citizen groups*. A number of studies have identified and discussed processes of citizen participation in smart and sustainable urban development (Lindkvist et al., 2019; Lovric & Lovric, 2018; Swapan & Shahidul, 2016). However, it is important to understand the effects from a multidimensional perspective. From a physical perspective, it is essential to understand how and to what extent citizens are currently engaged in the co-creation of new solutions for urban spaces that are accessible, equitable, and environmentally oriented. From a social point of view, there is an interest to understand how urban development may foster intra-group collaboration and social inclusion (Koohsari et al., 2013). The psychological perspective is central to understanding citizens at the levels of individuals, concentrating on their behaviour, perceptions, motivations, and abilities under stressful conditions (e.g., awareness of the ongoing climate change) (Hauge et al., 2019). From an environmental standpoint, it can be expected that citizen participation processes differ regarding their ability to reduce the harmful environmental effects of urbanization. For example, ideas collected by citizens during the ideation phase of developing new infrastructure investments may have more potential for reducing CO₂ emissions than ideas collected when infrastructure is already operational. From an economic perspective, there also exist different mechanisms contributing to a community's economic resilience and independence. In the Nordic context there exist multiple interesting examples of different mechanisms to increase the citizen participation in urban development. For instance, Helsinki has piloted programmes in which they allow citizens, via an internet portal, to decide how a share of the municipal budget is allocated to development programmes. In Denmark, a current debate addresses whether the parliament should have a Citizens' Assembly, modelled by the Citizens' Assembly of Ireland (see <https://citizensassembly.ie/>). There also exist multiple other examples such as the initiatives by Lier community in Norway and Lappeenranta, Finland, which are examined in more detail in the upcoming chapters of this book.

There is no doubt that citizen engagement is a key concern for citizens, municipal decision-makers, as well as elected politicians. However, this requires clear understanding of the different citizen groups, their needs, capabilities, and characteristics. Understanding these and the different barriers to participation creates a basis for the selection and tailoring of different mechanisms for citizen participation. In other words, sustainable urban development

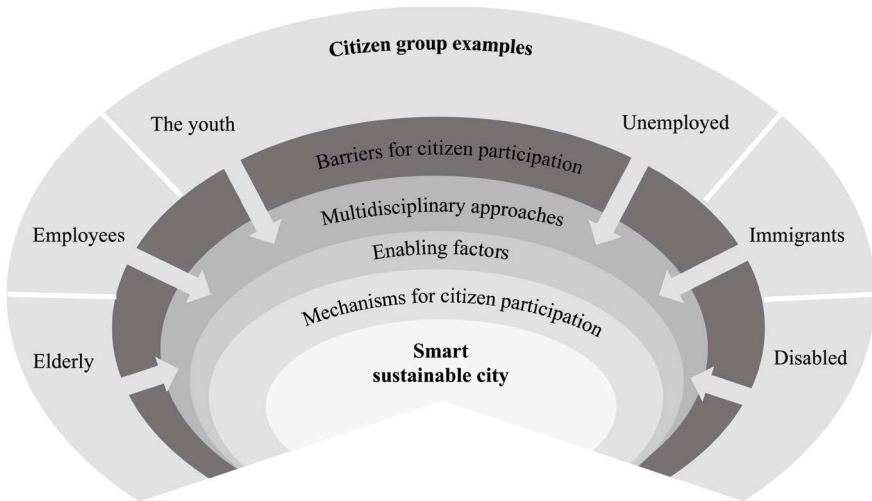


FIGURE 1.1 Approaches for citizen participation in sustainable urban development

Source: The authors.

requires multidisciplinary approaches for building inclusive and resilient cities. [Figure 1.1](#) summarizes the conceptual approach for citizen participation in sustainable urban development.

Outline of the book

This book combines 14 chapters from 34 authors representing multidisciplinary research fields across the Nordics. Each of the chapters provides unique contributions to the discussion on citizen participation in sustainable urban development under the main themes:

- 1 Citizen participation in project-based sustainable urban development
- 2 Mechanisms for citizen engagement
- 3 No-one left behind
- 4 Conclusion: a framework for engagement from the Nordics.

An overview of the chapters is provided in [Table 1.1](#).

Part I: Citizen participation in project-based sustainable urban development

The four chapters in this part open the book by highlighting the key considerations for sustainable urban development, which frequently take the form of project-based initiatives. These chapters explore the essential elements

TABLE 1.1 Overview of the Book Chapters

<i>Chapter</i>	<i>Authors</i>	<i>Chapter title</i>	<i>Country/case</i>	<i>Sub-topic</i>
<i>Part I: Citizen participation in project-based sustainable urban development</i>				
2	Tuomas Ahola Lauri Vuorinen Maxim Miterev Agnar Johansen Ville Ojanen	Public participation in urban development projects: A systematic cross-disciplinary literature review	Finland, Norway	Mechanisms of public participation in urban development projects
3	Susanna Hedborg	Negotiating neighbourhoods? Balancing sustainability goals in urban development districts	The case of Stockholm Royal Seaport, Sweden	Urban development organized through project ecology
4	Vedran Zerjav Govert Valkenburg Morten Gjerde	Participation in urban regeneration programmes: The case of Trondheim, Norway	The case of Trondheim, Norway	Citizen participation processes to urban development programmes
5	Matias Stähle Lauri Vuorinen Sebastian Toukola	User engagement in public urban development projects	Finland	User engagement across different project lifecycle phases
<i>Part II: Mechanisms for citizen engagement</i>				
6	Aashish Adhikari David Collins Agnar Johansen Alenka Temeljotov-Salaj	Effective digital citizen participation processes in urban development	The cases of Fjordbyen in Lier and Torskeholmen in Grimstad, Norway	Digital methods supporting citizen engagement
7	Mikhail Ola Adisa Shola Oyedeji Sian Lun Lau Tze Ying Sim Jari Porras	SustHack – Hackathons as a model of citizen participation in innovating for sustainable urban development	Finland	Digital methods supporting citizen engagement

(Continued)

TABLE 1.1 (Continued)

<i>Chapter</i>	<i>Authors</i>	<i>Chapter title</i>	<i>Country/case</i>	<i>Sub-topic</i>
8	Pauliina Lehtonen Kaisa Kurkela Anni Jäntti Lotta-Maria Sinervo	Possibilities for democratic equality? Participatory budgeting as a question of municipal resources	The cases of Helsinki and Tampere, Finland	Organizational resources and citizen engagement methods
9	Jussi Valta Emilene Leite	Designing an energy community operator: Capabilities for citizen engagement in Nordic case studies	The cases of Tamarinden, Örebro, and Stockholm Royal Seaport, Sweden The cases of Hiedanranta, Tampere, and Hepokulta, Turku, Finland	Capabilities for citizen engagement
10	Mikko Värttö Maija Jäske Kaisa Herne Kimmo Grönlund	The development of democratic attitudes and civic virtues in a deliberative mini-public	The case of Turku, Finland	Involving politicians in citizen participation initiatives
<i>Part III: No-one left behind</i>				
11	Alexandrina Schmidt	The dark side of mundane digitalisation: The use of digital technologies in social work with vulnerable clients	Denmark	Tackling the challenges of digital inequality
12	Nina Tura Aino-Maria Hakamäki	Junior University – A collaborative social innovation in education	The case of Junior University, Finland	Reaching out to decision- makers of the future
13	Coline Senior Alenka Temeljotov-Salaj Agnar Johansen Ana Cepuran	Play, plan, participate: Bridging education for sustainable development with children's participation through gaming	The case of ByMaker, Norway	Reaching out to decision- makers of the future
<i>Part IV: Conclusion</i>				
14	Tuomas Ahola Nina Tura Ville Ojanen	A framework for engagement from the Nordics	Synthesis of the cases	Concluding remarks

that must be addressed to effectively engage citizens in urban sustainability projects, examining themes such as cross-disciplinary approaches to engagement, balancing sustainability goals in neighbourhood development, citizen involvement in urban regeneration, and strategies for effective user engagement in public projects.

The chapter by *Ahola, Vuorinen, Miterev, Johansen, and Ojanen*, titled “*Public participation in urban development projects: a systematic cross-disciplinary literature review*,” explores 16 different mechanisms for public participation in urban development projects. These mechanisms vary in initiating actors, project phases, citizen roles, and levels of participation. The study highlights the uneven application of these mechanisms, with most focused on the planning phase, and underscores the need for diverse, early, and inclusive strategies across all project stages. It also calls for tailored communication, regulatory frameworks, capacity-building, and feedback mechanisms to enhance citizen engagement and project outcomes.

The chapter by *Hedborg*, “*Negotiating neighbourhoods? Balancing sustainability goals in urban development districts*,” focuses on the insight of project ecology of actors and discusses the role (or lack thereof) of citizens in the process of urban development. Hedborg examines how organizing through project ecology, defined as “interdependencies between projects and the particular firms, personal relations, localities and corporate networks from which these projects draw essential sources unfolds an organisational and physical space” (*Grabher, 2002*, p. 246), influences sustainability outcomes in light of balancing different actors’ goals and decision-making processes. The chapter illustrates how project ecologies, driven by financially strong private developers, can reshape urban planning goals initially set by local governments, often prioritizing spatial practices over the lived experiences of citizens. While project ecology may incorporate diverse actors, it largely remains top-down, raising concerns about overlooking citizen interests in favour of powerful developers’ agendas. Hedborg especially calls for balancing control and flexibility between government entities, for-profit organizations, and citizens in sustainable urban development.

The chapter by *Zerjav, Valkenburg, and Gjerde*, titled “*Participation in urban regeneration programmes: The case of Trondheim, Norway*,” moves the focus on urban regeneration programmes exploring the actors, aims, and arenas for participation processes. The authors analyse the urban regeneration programme in Trondheim through the lenses of (a) the policy rationale with its intended outcomes and (b) the engagement and partnering structures and process for citizen participation. By extending the participation triangle (by *Hofer & Kaufmann, 2023*) to include the power-mediated interactions across and between the dimensions of participation and actors, they summarize that the participation process may not be appropriate for every situation of urban regeneration intervention. Furthermore, to be effective, the

participation process should be consistently followed throughout the programme lifecycle.

Finally, *Stähle, Vuorinen, and Toukola*, in their chapter “*User engagement in public urban development projects*,” increase the understanding of the variety of engagement practices for different users across urban development project lifecycles. By focusing on two publicly procured construction projects in Finland, the authors reveal different practices of user engagement, ways of communicating user needs, and how the user’s expectations and needs are considered within the project work. They reveal the differences between the intensity and nature of user engagement during different project lifecycle phases and conclude that instead of merely focusing on the front-end phases, significant value creation opportunities exist in engaging various stakeholders in the later stages of a project lifecycle. This highlights the importance of considering citizen engagement beyond the planning phases of urban development projects, meaning that active collaboration is required, and significant resources should be reserved for user engagement processes throughout the process.

Part II: Mechanisms for citizen engagement

This part showcases a range of approaches for involving citizens in sustainable urban development, including both traditional and digitally enabled tools and processes. The chapters explore diverse mechanisms such as digital participation platforms, sustainability-focused hackathons, participatory budgeting, and the design of energy community operators, each offering unique pathways to engage citizens in meaningful ways. The authors highlight that the choice of methods depends not only on the goals of engagement but also on the availability of municipal resources, organizational capabilities, and support for democratic practices like deliberative mini-publics, which foster civic virtues and democratic attitudes. Together, these chapters underscore how tailored, resource-sensitive strategies can enhance citizen involvement in shaping sustainable urban development.

Adhikari, Collins, Johansen, and Temeljotov-Salaj concentrate on digital citizen participation in their chapter titled “*Effective digital citizen participation processes in urban development*.” They explore the effective participation of diverse citizen groups in urban development projects through the utilization of evolving information and communication technologies. If used properly, these methods can increase the flexibility in citizen participation and drive effective and meaningful involvement. By examining the Norwegian cases of Fjordbyen in Lier and Torskeholmen in Grimstad, they emphasize the need for tailored solutions of digital citizen participation processes to ensure they match each urban development project’s specific needs and contexts.

Adisa, Lau, Sim, and Porras in their chapter “*SustHack – Hackathons as a model of citizen participation in innovating for sustainable urban development*” emphasize the importance of involving diverse stakeholders in innovation for sustainable urban development. This approach requires balancing both top-down and bottom-up perspectives while also considering technological advancements. The chapter examines how the sustainability-focused hackathon (SustHack) can be used as a tool to engage citizens into ideation and prototype evaluation processes, bringing them together with city planners, researchers, and ICT enthusiasts around shared development goals. The SustHack model emphasizes citizen participation, empowering participants to become change agents who raise awareness about sustainable actions across the municipalities. It aims to foster inclusivity by creating spaces where citizens, researchers, and businesses can contribute their voices and resources to community-benefiting projects and initiatives.

In their chapter, “*Possibilities for democratic equality? Participatory budgeting as a question of municipal resources*,” *Lehtonen, Kurkela, Jäntti, and Sinervo* focus on participatory budgeting as a specific mechanism for citizen involvement. Through two case studies in Finland, the authors emphasize the essential role of financial, human, knowledge-based, technological, and material resources in successfully implementing this approach. While participatory budgeting is seen as valuable for enhancing democracy and promoting social sustainability, the authors point out that municipalities vary in their capacity to provide equal participation opportunities for all citizens. This chapter underscores the importance of organizational resources as critical factors enabling or limiting democratic equality and social sustainability, highlighting how municipal resources are closely tied to the feasibility of implementing participatory budgeting and other democratic innovations.

In their chapter, titled “*Designing an energy community operator: Capabilities for citizen engagement in Nordic case studies*,” *Valta and Leite* examine four Nordic cases to demonstrate the challenges of integrating citizens into sustainable urban development in the context of creating energy communities. They emphasize the role that cities and municipalities play in promoting sustainable development, particularly in the energy sector, where citizen support is essential for infrastructure investments. Drawing on the case studies, the authors outline key capabilities and activities necessary for developing energy communities, covering political, financing, business models, regulations, technology, and social dynamics. Their main conclusion is that citizen participation and behavioural change mechanisms are effective only if the operator can develop viable models and align the interests of involved actors.

In their chapter, “*The development of democratic attitudes and civic virtues in a deliberative mini-public*,” *Värttö, Jäske, Herne, and Grönlund* explore the impact of involving politicians in citizen participation initiatives. Their study examines the effects of the Turku deliberative mini-public, a tool that aims to

enhance reflection and will formation in democratic decision-making. The findings indicate that deliberation can positively influence political efficacy and that including politicians in mini-public deliberations does not negatively affect the development of civic virtues. Based on the findings, the authors offer recommendations for organizing deliberative mini-publics to enhance citizen participation in sustainable urban development.

Part III: No-one left behind

This part shifts the focus to the importance of addressing the unique needs of vulnerable groups within sustainable urban development. In addition, this section culminates in insights on empowering future decision-makers – children and youth – by equipping them with tools and opportunities to actively participate in shaping sustainable urban development. Together, these chapters emphasize the need for inclusive strategies that ensure all voices are heard in the journey towards sustainable urban development.

By starting with the insights of more vulnerable groups of citizens, *Schmidt*, in her chapter, *“The dark side of mundane digitalisation: The use of digital technologies in social work with vulnerable clients,”* concentrates on the challenges and opportunities of digitalization for the participation of such citizen groups. These are examined through the everyday dynamics of social work and the welfare encounter, which include the use of mundane technologies, i.e., the technologies well-integrated into the daily practices reflecting everyday life and tend to be unnoticed ([Greenwood & Cox, 2023](#); [Michael, 2003](#)). The findings implicate that the digitalization of public services can provide social workers with new strategic options, but everyday digitalization carries a hidden complexity due to its mundane, often unnoticed nature, which is frequently overshadowed by more exciting technological advancements. These findings highlight a need to tailor methods and technologies to be used in citizen participation to ensure that the needs and requirements of those more vulnerable citizen groups will be considered, and no-one is left behind.

Finally, the last two chapters of this part focus on the decision-makers of the future, i.e., the children and the youth. In their chapter *“Junior University – A collaborative social innovation in education,”* *Tura* and *Hakamäki* delve into the possibilities of educating the decision-makers of the future and building the skills and knowledge for enhancing the sustainable development by innovating the educational landscape. By examining Junior University case, they identify the key success factors and challenges that emerged during the development and implementation of this social innovation in education. Shedding light on these insights is valuable for addressing critical aspects in developing similar initiatives. The chapter enhances understanding of citizen participation in sustainable urban development by illustrating how social innovation can help bridge socioeconomic gaps in higher education and science

engagement, fostering positive, bottom-up change. The authors emphasize that engaging young people and providing them with equal opportunities to build essential skills for sustainability will empower future generations to actively participate and make a meaningful impact.

The chapter by *Senior, Temeljotov-Salaj, Johansen, and Cepuran* titled “*Play, plan, participate: Bridging education for sustainable development with children participation through gaming*” explores how to actively involve young people in sustainable urban planning. It emphasizes design principles for creating gamified learning environments that encourage children’s participation in sustainable urban development, using the ByMaker game prototype as an example. This game is a practical tool for educators to teach sustainability topics in a way that connects classroom lessons to real-world urban challenges, helping children understand how their choices can affect their communities. The authors highlight the potential for engaging children in sustainable urban development through gaming while also acknowledging the limitations of these approaches, which must be addressed to enhance meaningful participation.

Part IV: Conclusion

The final part and chapter, authored by *Ahola, Tura, and Ojanen*, presents the “*A framework for engagement from the Nordics*” drawing on insights from the chapters of this book as well as NordForsk-funded research project Citizens as Pilots of Smart Cities (2020–2024). This framework synthesizes key insights of this entire book into six different perspectives as well as offers conclusions that jointly constitute a roadmap for fostering effective and inclusive participation in ongoing and future efforts for shaping our cities towards a smarter and more sustainable tomorrow.

Conclusions

This book invites the readers on the journey through the dynamic and multifaceted realm of citizen participation in sustainable urban development. From foundational considerations in project-based approaches to the exploration of innovative tools and mechanisms for engagement, each chapter builds a deeper understanding of how citizens can play an integrative role in shaping urban environments. By combining theoretical advancements, real-world experiences, and practical insights, the book highlights the challenges and opportunities of designing inclusive, effective, and transformative participation processes.

A conceptual approach of citizen participation in sustainable urban development, introduced in this chapter, emphasizes the tailor-made nature of participation mechanisms, shaped by factors such as context, citizen groups,

enablers, barriers, and the need for a multidisciplinary or preferably cross-disciplinary perspective. It highlights how these mechanisms can not only adapt to diverse situations but also mitigate risks and challenges associated with citizen engagement.

The chapters are organized to showcase the interconnectedness of policy, innovation, and social responsibility, emphasizing the balance of diverse stakeholder interests while ensuring no voice is left unheard. The book culminates with a forward-looking perspective, addressing how empowering vulnerable groups and educating future generations can catalyse a culture of participation in urban sustainability development. Readers are encouraged to delve into each chapter to uncover strategies, lessons, and inspirations that not only enhance understanding but also empower action. Through these discussions, the book offers valuable lessons for policymakers, practitioners, researchers, and engaged citizens alike, providing inspiration for building more inclusive and sustainable urban futures – one participatory initiative at a time.

References

- Ahola, T. (2018). So alike yet so different: A typology of interorganisational projects. *International Journal of Project Management*, 36(8), 1007–1018.
- Ahola, T., Vuori, M., & Viitamo, E. (2017). Sharing the burden of integration: An activity-based view to integrated solutions provisioning. *International Journal of Project Management*, 35(6), 1006–1021.
- Artto, K., Ahola, T., & Vartiainen, V. (2016). From the front end of projects to the back end of operations: Managing projects for value creation throughout the system lifecycle. *International Journal of Project Management*, 34(2), 258–270.
- Bibri, S. E., & Krogstie, J. (2017). Smart sustainable cities of the future: An extensive interdisciplinary literature review. *Sustainable Cities and Society*, 31, 183–212.
- Buzási, A., Pálvölgyi, T., & Csete, M. S. (2021). Assessment of climate change performance of urban development projects – Case of Budapest, Hungary. *Cities*, 114, 103215.
- Eubank, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.
- Flyvbjerg, B., Skamris Holm, M. K., & Buhl, S. L. (2003). How common and how large are cost overruns in transport infrastructure projects? *Transport Reviews*, 23(1), 71–88.
- Fredericks, J., Caldwell, G. A., Foth, M., & Tomitsch, M. (2019). The city as perpetual beta: Fostering systemic urban acupuncture. In M. de Waal & M. de Lange (Eds.), *The hackable city: Digital media and collaborative city-making in the network society* (pp. 67–92). Springer.
- Fuentes, M., Smyth, H., & Davies, A. (2019). Co-creation of value outcomes: A client perspective on service provision in projects. *International Journal of Project Management*, 37(5), 696–715.
- Gersonius, B., Ashley, R., Pathirana, A., & Zevenbergen, C. (2013). Climate change uncertainty: Building flexibility into water and flood risk infrastructure. *Climatic Change*, 116(2), 411–423.
- Grabher, G. (2002). The project ecology of advertising: Tasks, talents and teams. *Regional Studies*, 36(3), 245–262.

- Greenwood, M., & Cox, J. W. (2023). Seduced by technology? How moral agency is mediated by the invisibility of everyday technologies. *Organization Studies*, 44(4), 523–543. <https://doi.org/10.1177/01708406221107455>
- Hall, R. E., Bowerman, B., Braverman, J., Taylor, J., Todosow, H., & Von Wimmer-sperg, U. (2000). *The vision of a smart city (No. BNL-67902; 04042)*. Brookhaven National Lab.
- Hauge, Å. L., Hanssen, G. S., & Flyen, C. (2019). Multilevel-networks for climate adaptation – What works? *International Journal of Climate Change Strategies and Management*, 11(2), 215–234.
- Hofer, K., & Kaufmann, D. (2023). Actors, arenas and aims: A conceptual framework for public participation. *Planning Theory*, 22(4), 357–379.
- Kamols, N., Foth, M., & Guaralda, M. (2021). Beyond engagement theatre: Challenging institutional constraints of participatory planning practice. *Australian Planner*, 57(1), 23–35.
- Koohsari, M. J., Badland, H., & Giles-Corti, B. (2013). (Re)designing the built environment to support physical activity: Bringing public health back into urban design and planning. *Cities*, 35, 294–298.
- Lindkvist, C., Juhasz-Nagy, E., Nielsen, B. F., Neumann, H. M., Lobaccaro, G., & Wyckmans, A. (2019). Intermediaries for knowledge transfer in integrated energy planning of urban districts. *Technological Forecasting and Social Change*, 142, 354–363.
- Liu, Y., van Marrewijk, A., Houwing, E. J., & Hertogh, M. (2019). The co-creation of values-in-use at the front end of infrastructure development programs. *International Journal of Project Management*, 37(5), 684–695.
- Lovric, N., & Lovric, M. (2018). Network approach to constructing theory of participation in spatial planning. *Land Use Policy*, 79, 30–47.
- Marsal-Llacuna, M. L., Colomer-Llinàs, J., & Meléndez-Frigola, J. (2015). Lessons in urban monitoring taken from sustainable and livable cities to better address the smart cities initiative. *Technological Forecasting and Social Change*, 90, 611–622.
- Michael, M. (2003). *Between the mundane and the exotic time for a different socio-technical stuff*. www.sagepublications.com
- Shin, S. Y., Kim, D., & Chun, S. (2021). Digital divide in advanced smart city innovations. *Sustainability*, 13(7), 4076.
- Swapan, M., & Shahidul, H. (2016). Who participates and who doesn't? Adapting community participation model for developing countries. *Cities*, 53, 70–77.
- Trencher, G., & Karvonen, A. (2019). Stretching “smart”: Advancing health and well-being through the smart city agenda. *Local Environment*, 24(7), 610–627.
- Tura, N., & Ojanen, V. (2022). Sustainability-oriented innovations in smart cities: A systematic review and emerging themes. *Cities*, 126, 103716.
- United Nations (2018). The sustainable Development Goals Report. <https://unstats.un.org/sdgs/files/report/2018/the-sustainable-development-goals-report-2018-en.pdf>
- Wang, E. T., Chang, J. Y., Jiang, J. Y. J., & Klein, G. (2011). User advocacy and information system project performance. *International Journal of Project Management*, 29(2), 146–154.
- Yigitcanlar, T., & Termina, S. (2015). Rethinking sustainable urban development: Towards integrated planning and development process. *International Journal of Environmental Science and Technology*, 12, 341–352.

PART I

Citizen participation in project-based sustainable urban development



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2

PUBLIC PARTICIPATION IN URBAN DEVELOPMENT PROJECTS

A systematic cross-disciplinary literature review

*Tuomas Ahola, Lauri Vuorinen, Maxim Miterev,
Agnar Johansen and Ville Ojanen*

Introduction

To a considerable extent, cities are developed through urban development projects (UDPs), one-of-a-kind undertakings that seek to build and improve urban infrastructure and to develop the resources, such as information systems, that facilitate its use. This study rests on the premise that individual members of the public (i.e. citizens) may possess knowledge that can support the management of UDPs and their deliverables throughout their life cycles, which for urban infrastructure typically span years and often span decades (Leite, 2022). For instance, in a project's front-end phase, during which alternative investment options are conceptualised and evaluated, individual citizens may possess an in-depth understanding of their needs and urban surroundings and frequently have ideas for projects that, if realised, would provide value for them (Letaifa, 2015).

But how—and to what extent—are the views and insights of individual citizens currently being taken into consideration when UDPs are being conceptualised, planned, implemented and ultimately used? In the project studies discipline, the stream of research on stakeholder engagement has highlighted the importance of creating value for all of a project's stakeholders, including individual citizens (Eskerod & Huemann, 2014; Leite, 2022). Moreover, this research stream has acknowledged the importance of actively engaging stakeholders, that is, inviting diverse stakeholders to collaborate in the design and implementation of projects (Lehtinen et al., 2019; Lehtinen & Aaltonen, 2020). However, with only a few exceptions, such as studies of the perspectives of local communities (Cuganesan & Floris, 2020; Di Maddaloni & Davis, 2017; De Crescenzo

et al., 2021), such research has focused on organisational stakeholders or powerful individual decision-makers instead of individual citizens (Chow & Leiringer, 2020).

The limited focus of the earlier discussion may be insufficient as public participation and citizen participation are central research themes in several academic disciplines such as public administration (Berntzen & Johannessen, 2016), transportation planning (e.g. Majumdar, 2017), sociology (e.g. Adamson, 2010) and health care (e.g. Chandra et al., 2016). Such research is likely to shed light on the nature of various *mechanisms of citizen participation*, that is, mechanisms for involving individual citizens in project-related decision-making. Accordingly, the aim of this chapter is to answer the following research question:

RQ: *How do citizens participate in urban development projects throughout their life cycles?*

We answer our research question by means of a systematic cross-disciplinary literature review that reveals and describes 16 mechanisms of citizen participation.

Literature

The extant literature has defined UDPs as ‘focused efforts to improve and/or rehabilitate urban neighbourhoods through the (re)construction of housing, commercial real estate and/or public works’ (Janssen-Jansen & van der Veen, 2017, p. 207). In this study, we approach urban development from a project-based perspective, conceptualising UDPs broadly as multistakeholder projects that impact the physical, economic or social environment in urban settings. This view encompasses the conceptualisation, design, planning, implementation and more effective utilisation of buildings and other infrastructure, such as transportation systems, recreational areas, information systems and cultural events. Further, we cover the entire UDP life cycle, spanning the project front-end phase and the operations phase.

There is a large and well-established body of research in the interdisciplinary field of public participation which has been discussed in the following contexts:

- research activities (e.g. Riesch et al., 2013)
- resource management, including the management of forests (e.g. Busscher et al., 2018), national parks (e.g. Gandiwa et al., 2013) and wetlands (e.g. Slootweg, 2018)
- educational programmes (e.g. Corrie, 2013)
- political processes (e.g. Copus, 2003)

The interdisciplinary field of public participation has highlighted various forms of participation and evaluated their extent and depth. Typologies of public participation distinguish among passive participation (e.g. receiving project information), interactive participation (e.g. workshops) and active participation (citizen-led participation) (Chi et al., 2014) as well as Arnstein's ladder of citizen participation (Arnstein, 1969). Moreover, in the cognate stream of research on user involvement in product development, the lateral dimension (depth of user involvement) is complemented by the longitudinal dimension (points of interaction during the design life cycle) (Kaulio, 1998).

Method

Our study is based on a systematic interdisciplinary review of literature on citizen participation in UDPs. Because the extensive literature on citizen participation and public engagement is distributed across a number of distinct research fields, a systematic literature review (SLR) is justified. SLRs enable a minimisation of bias, because the identification and analysis of academic contributions occur in a transparent and reproducible manner (Tranfield et al., 2003). Further, SLRs enable the identification of key concepts and themes as well as their relationships (Rousseau et al., 2008). Figure 2.1

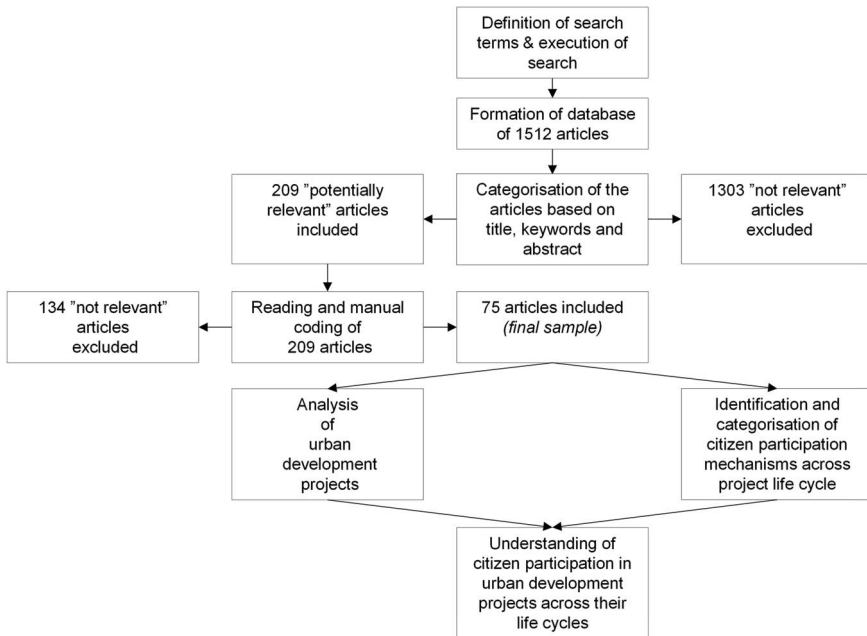


FIGURE 2.1 Method

Source: Authors.

provides an overview of our method, which is discussed in detail in the following sections.

Identification of articles

To identify relevant articles, we first carried out keyword-based searches using the Scopus database. Indexing more than 28,000 titles, Scopus is widely regarded as a leading platform for accessing scientific research. Our intent was to identify all articles in the database that met the following criteria:

- discussion of one or several mechanisms of citizen participation
- discussion of one or several UDPs
- English-language article

Because the term ‘citizen participation’ has several synonyms (or terms with at least strongly overlapping meanings), such as ‘public participation’, ‘citizen involvement’, ‘public involvement’ and ‘citizen engagement’, we carried out several searches and downloaded the titles, keywords and abstracts of all the articles that appeared in the search results. Moreover, because the concept of UDP is not established across all scientific disciplines, we employed the semantically broader keyword ‘project’ in the first step to ensure that we did not overlook papers discussing relevant UDPs under a different name. To ensure maximum coverage in terms of time and academic disciplines, no limitations were set regarding publication year, discipline or journal.

Categorisation of the articles based on title, keywords and abstract

Following the removal of duplicate articles and articles without author details, we read the title, keywords and abstract of each of the 1,512 articles. The purpose of this step was to exclude articles that were not relevant to our study. We relied on the following exclusion criteria:

- The article does not discuss one or more UDPs.
- The article does not focus on citizen participation.

First, four of the authors independently categorised into two groups—‘potentially relevant’ and ‘not relevant’—a set of 100 articles drawn from total set of 1,512 articles. The results of the categorisation efforts were shared, and a meeting was held to discuss the results and develop a joint understanding of how the exclusion criteria should be utilised. Following this meeting, the entire set of 1,512 articles was categorised. During this phase, 1,303 articles, clearly the majority of the 1,512 articles, were

categorised as not relevant. The main reasons for categorising an article as not relevant were as follows:

- The article focused on a national or regional development project, or a project carried out in a rural context, instead of a UDP.
- The article discussed gradual efforts to improve ongoing municipal processes, and no UDP could be clearly identified.
- The article discussed participation mechanisms in a highly abstract way (e.g. as a pillar of democracy) and with no link to a specific UDP.

In the 209 cases in which the article's status was unclear, it was categorised as potentially relevant and processed as described in the following section.

Manual coding of articles

The authors read and manually coded all 209 articles categorised as potentially relevant. We coded both the predetermined variables and the codes that we iteratively developed during the coding process. The purpose of the predetermined codes was to provide a high-level overview of the descriptive characteristics of UDPs discussed in the sample articles, the citizen-participation mechanisms used and the UDP outcomes. The iteratively developed codes enriched our understanding of the nature of each participation mechanism and its use throughout the project life cycle. The predetermined variables included (1) country context, (2) type of UDP (transportation, city-area or building development, infrastructure, culture, recreation, IT and other), (3) citizen groups involved and (4) name of citizen-participation mechanism. We arrived at a detailed understanding of the citizen-participation mechanisms through an in-depth qualitative content analysis of the body text of each of the 75 articles.

Results

In this section, we present brief descriptive analyses of our sample and then discuss the characteristics of UDPs and the participation mechanisms identified in the articles.

Descriptive analyses

Figure 2.2 illustrates the number of publications per year, starting in 1994, the publication year of the oldest article in our final sample, and ending in 2020. A clear upward trend in the number of articles published annually is evident, indicating increasing scholarly interest in the phenomenon.

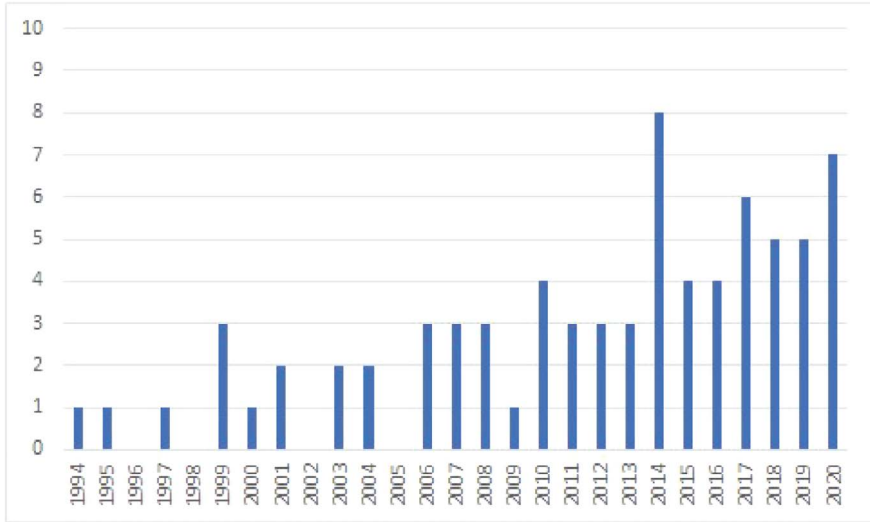


FIGURE 2.2 Publications per year based on the final sample

Source: Authors.

Participation mechanisms in urban development projects

In this section, the mechanisms of public participation in UDPs discussed by the articles are introduced and described in regard to the actor utilising the mechanism, the frequency of occurrence, the typical project-life-cycle phases, the role of citizens and the depth of participation. [Table 2.1](#) summarises the 16 participation mechanisms, and the individual mechanisms are discussed in more detail directly below.

Mechanisms utilised predominantly by the project organisation

Public events are participation mechanisms for medium or large groups of people (~50+ people). Public events took place under various names, such as public, local, open, information and community meetings (e.g. [Alter et al., 2008](#); [Bailey et al., 2007](#); [Bakht & El-Diraby, 2014](#); [Cuppen et al., 2012](#)), public hearings ([Barnes & Langworthy, 2004](#); [Hillier, 2018](#); [Keever et al., 1999](#)) and various events and engagement sessions ([Goodman et al., 2020](#)). An important detail of these participation mechanisms is that the law often requires them (especially public hearings for large projects; [Barnes & Langworthy, 2004](#); [Hillier, 2018](#); [Keever et al., 1999](#)). Public events typically took place in the project-planning phase, and to a lesser extent, they took place during the front-end phase. In their typical form, public events resembled Arnstein's concept of informing. In Arnstein's typology, examples of this position are 'informing citizens about an action plan' ([Li & de Jong, 2017](#)) and public

TABLE 2.1 Summary of Mechanisms of Participation in Urban Development Projects

<i>Mechanism</i>	<i>Description</i>	<i>Number of discussions of the use of a mechanism in articles</i>	<i>Typical project-life-cycle phase(s)</i>	<i>Citizens' role in UDPs</i>	<i>Typical depth of participation (according to Arnstein, 1969)</i>
Mechanisms utilised predominantly by the project organisation					
Public events	Project-related discussions or presentations take place before medium-to-large audiences (~50+ people; e.g. public hearings).	57	Primarily planning, also front end	Avenues for citizens to receive information on the project and often also to provide their views on project plans, project design etc.	Informing, consultation
Workshops and focus groups	The project and citizens work together in small-to-medium groups (~5–15 people) in preplanned collaborative sessions.	54	Primarily planning, also front end	Citizens provide their views on project plans, project design etc. Citizens may also suggest novel design ideas or scope changes.	Consultation
Written communication	Written information regarding project details is actively shared with targeted citizen groups.	31	Primarily planning, also implementation	Citizens are recipients of information	Informing
Surveys and polling	The opinions of larger numbers of citizens are systematically collected (e.g. via surveys).	21	Primarily planning, also front end	Citizens provide their views on project plans, project design etc.	Consultation

(Continued)

TABLE 2.1 (Continued)

<i>Mechanism</i>	<i>Description</i>	<i>Number of discussions of the use of a mechanism in articles</i>	<i>Typical project-life-cycle phase(s)</i>	<i>Citizens' role in UDPs</i>	<i>Typical depth of participation (according to Arnstein, 1969)</i>
Assigning formal roles to individuals	Individual citizens are assigned specific roles in the project organisation.	15	Planning and front end	Citizens' official representation in the project. Representatives may also have decision-making power on project plans.	Placation, partnership, consultation, manipulation
Personal engagement	Efforts to engage citizens individually, such as through visits and interviews.	13	Primarily planning, also front end and implementation	Influential citizens, such as opinion leaders, local residents and experts, provide their views on project plans, project design etc.	Consultation
Physical contact point	Project establishes a physical office (or site) that citizens can visit to acquire information and provide feedback.	10	Primarily planning, also front end and implementation	Citizens are recipients of project information; moreover, they may provide feedback on the project (e.g. project plans or scope).	Informing, consultation
Feature demonstrations	Project features, alternatives or plans are publicly demonstrated over a limited time period (e.g. prototypes and pilots).	10	Primarily planning, also front end and implementation	Citizens are recipients of project information; moreover, they may provide feedback on the project (e.g. design alternatives).	Informing, consultation

(Continued)

TABLE 2.1 (Continued)

<i>Mechanism</i>	<i>Description</i>	<i>Number of discussions of the use of a mechanism in articles</i>	<i>Typical project-life-cycle phase(s)</i>	<i>Citizens' role in UDPs</i>	<i>Typical depth of participation (according to Arnstein, 1969)</i>
Visual-design tools	Tools that support visual presentation of project plans and design options are used.	8	Planning	Citizens contribute new ideas by refining existing designs.	Informing, consultation
Project hotline	Citizens may contact the project office via a dedicated telephone number.	8	Primarily planning, also implementation	Citizens are recipients of project information; moreover they may provide feedback on the project.	Informing, consultation
Mechanisms utilised by both the project organisation and citizens					
Online presence	Online platforms, such as websites and social media, are used for engagement.	19	Primarily planning, also front end	Citizens may be recipients of project information, active contributors of project ideas or opponents of the project.	Informing, consultation
Mass media	Information about the project is distributed to a broad audience.	19	Primarily planning, also implementation	Citizens may be recipients of information about the project and its intended benefits or may focus media attention on project shortcomings.	Informing

(Continued)

TABLE 2.1 (Continued)

<i>Mechanism</i>	<i>Description</i>	<i>Number of discussions of the use of a mechanism in articles</i>	<i>Typical project-life-cycle phase(s)</i>	<i>Citizens' role in UDPs</i>	<i>Typical depth of participation (according to Arnstein, 1969)</i>
Engagement through dedicated organisations	A specific organisation is used or established to support and promote public participation.	18	Primarily planning, also front end	Dedicated organisations may either support or oppose the project.	Placation, consultation
Mechanisms utilised predominantly by citizens					
Protests	Visible protests are organised to hinder or stop the progress of the entire project or certain aspects of it.	13	Primarily planning, also front end	Citizens' protests aim to direct the attention of media and other stakeholders to negative aspects of the project, hindering its progress.	N/A
Formal petitions and change demands	Citizens make formal (often juridical) demands to change the project scope or stop it altogether.	12	Primarily planning	Legal process may result in forced changes to the project scope or in abandonment of the project in its entirety. Repeated claims may also attract media attention.	N/A
Mobilising resources	Additional resources or powerful individuals for supporting or opposing the project are linked.	9	Primarily planning, also implementation	By linking resources, citizens' power to influence the project increases. This power can be used to support or oppose the project.	N/A

meetings that resemble ‘information meetings’ (Lidskog & Soneryd, 2000). In some cases, the depth of participation in public events reached consultation as well (e.g. ‘soliciting feedback’; Goodman et al., 2020). However, the depth of consultation provided by citizens has often been considered highly symbolic or limited by citizens’ lack of expertise.

Like public events, **workshops and focus groups** target groups of people. In contrast with public events, however, the participant groups are relatively small (~5–15 people). In workshops and focus groups, the participants discuss a project in a preplanned and collaborative manner. Agenda items included identification of project-related challenges (Alter et al., 2008) and prioritisation of project-design options (Goodman et al., 2020). All three of these items aligned with the concept of consultation in Arnstein’s typology. However, in some cases, the influence of citizens has been considered very low and, thus, the depth of participation is limited to informing only. Most often, these kinds of sessions took place in the project-planning phase, although in some cases they were positioned in the front-end phase as well.

Written communication is a participation mechanism in which project information is shared via various channels. These channels include leaflets (Blakeley & Evans, 2010), letters (Casello et al., 2015) and emails, mailing lists and newsletters (Fontaine, 2008; Meyer et al., 2001). Regarding the depth of participation, written communication exemplified Arnstein’s concept of informing.

Surveys and polling enable the systematic collection of citizens’ opinions, views or expectations. Surveys and polling usually took place in the project-planning phase and sometimes also in the front-end phase. Surveys and polling included polls about citizens’ priorities for project objectives in a transportation project (Grossardt et al., 2019) and surveys about residents’ opinions of competing project-design alternatives for a bridge project in Hong Kong (Hooton et al., 2011). Illustrating that several participation mechanisms can be combined, a poll was used to confirm or verify the results of earlier rounds of public participation in a transportation project in China (Chen & Mehndiratta, 2007). On Arnstein’s ladder, this category of participation mechanisms exemplified the rung of consultation; on this rung, there is clear two-way communication between the project and citizens, but citizens’ influence and decision-making power are typically quite limited.

The fifth participation mechanism in this group is **assigning formal roles to individuals**. This relates to citizens’ representation in parties such as a project’s advisory committee or steering group (e.g. Cuppen et al., 2012) or to the establishment of similar parties representing citizens (e.g. a citizens’ task force or a residents’ steering group; Blakeley & Evans, 2010). Assigning formal roles to individuals typically occurred in the project-planning and front-end phases. Regarding depth of participation, this participation mechanism exhibited both placation and partnership. Regarding partnership, in the

groups with citizen representatives, there were some cases of ‘real’ decision-making power in UDPs (e.g. Meyer et al., 2001). However, in other cases, the citizens’ representation was considered more symbolic and their decision-making power significantly more limited. In the most extreme case, citizens expressed concerns about not being heard and even ‘unfair play’, which reflected Arnstein’s concept of manipulation.

Personal engagement includes various approaches to engaging individual citizens or specific citizen groups. These approaches include interviews (Alter et al., 2008; Chen & Mehndiratta, 2007) and various forms of visitation and outreach (Alavijeh & Ahmadi, 2018; Bakht & El-Diraby, 2014; Casello et al., 2015). The empirical examples of personal engagement were especially prominent in the project-planning phase, but they also occurred in the front-end and implementation phases. An important characteristic of this participation mechanism is a tailored approach to specific citizen groups; studies have discussed personal visits to business owners (Casello et al., 2015) and individual interviews of disadvantaged citizen groups (Chen & Mehndiratta, 2007). With respect to Arnstein’s typology, this participation mechanism typically reflected the rung of consultation. This was indicated, for example, by the two-way communication between the project and citizens in interviews.

Physical contact points are physical locations where a UDP is presented or project information is shared. These physical locations include open houses (Bakht & El-Diraby, 2014), booths or kiosks at events (Bakht & El-Diraby, 2014; Liu et al., 2015) and information stations or centres (Goodman et al., 2020; Prevost, 2006). Most empirical cases of this participation mechanism were associated with the planning phase, but they appeared in the front-end and implementation phases as well. Typically, the depth of participation was limited to informing, but it demonstrated some potential for consultation as well.

Much like physical contact points, **feature demonstrations** involve situations in which a project is showcased or in which a project, project plans or project-design alternatives are demonstrated to the public. Again, most of the empirical examples appeared in the project-planning phase, but some appeared in the front-end and implementation phases as well. Two empirical examples were full-scale and miniature models of new houses (Mota, 2019) and a ‘preview park’ constructed by a city to market and demonstrate a project for designing and building a new park on the site of a former marine air base (Garde, 2014). Importantly, in both cases, visitors’ insights affected the project design or project plans. Thus, this participation mechanism had the potential for consultation in addition to mere informing.

UDPs are often large and complex and therefore require the visualisation of elements like project scope (e.g. size), appearance or position in the landscape. **Visual design tools** can provide valuable insights for local stakeholders with little or no technical background. The great majority of empirical cases

utilising visual design tools for citizen participation occurred in the project-planning phase. Examples were aerial photographs (Anderson et al., 1994), visual prototyping tools (Noyman et al., 2017) and augmented reality systems (Simonofski et al., 2017). With respect to Arnstein's ladder, visual design tools seemed to correspond to the rung of informing, but they included elements of consultation as well.

The final participation mechanism in this category is **project hotlines**. Project hotlines are channels that enable citizens to contact the project (e.g. a project office or project coordinator) and ask questions, receive information or provide feedback, for example. Typically, the channel of communication between citizens and a UDP is the telephone. Most of the empirical evidence was associated with the project-planning phase, but some cases were associated with the implementation phase as well (Li & de Jong, 2017; Talvitie & Pearson, 1997, p. 750). Regarding depth of participation, project hotlines mainly reflect the rung of informing. However, there was some evidence of the use of project hotlines to collect citizens' feedback or learn about their preferences (e.g. Meyer et al., 2001), demonstrating hotlines' potential for consultation.

Mechanisms utilised by both the project organisation and citizens

Online presence is citizen participation that takes place in various online settings. The two main categories of this type of participation are project websites (e.g. Meyer et al., 2001; Petts, 2006) and presence or activity on social media (e.g. Casello et al., 2015; Tsuladze et al., 2018). Although we identified more empirical examples of this mechanism being utilised by the projects, there were a few cases of initiation from the citizens as well. An example of the latter was nongovernmental organisations (NGOs) supporting public transportation projects on social media (Casello et al., 2015). Regarding the project life cycle, most online presence was associated with the project-planning and front-end phases. Regarding depth of participation, online presence most often reflected Arnstein's concept of informing. However, elements of consultation were evident in some cases (e.g. comments received from citizens online; Garde, 2014).

The second participation mechanism in this category is **mass media**. Through this mechanism, project organisations or citizen groups utilise a broad range of media channels to share information, seek influence or affect opinions or preferences. Typical examples of media channels were open letters (e.g. De Mello Lemos & Luna, 1999), and television or radio (e.g. de la Motte, 2007; Keever et al., 1999). Most uses of mass media occurred in the project-planning phase, and it was used to a lesser extent in the project-implementation phase. In the typology of Arnstein, these uses of mass media exemplified the concept of informing.

Engagement through dedicated organisations is a participation mechanism in which a dedicated organisation is established or utilised to promote public participation. These kinds of organisations have numerous titles, including citizen task forces (Barnes & Langworthy, 2004), committees and expert panels (Casello et al., 2015) and advisory committees (Goodman et al., 2020). As these names suggest, this participation mechanism clearly resembles the mechanism of assigning formal roles to individuals, discussed above. Empirical examples of the mechanism were especially prominent in the planning phase, but it was used to a lesser extent in the front-end phase as well. This participation mechanism was utilised by both the project and the citizen sides of UDPs. For example, in the front-end phase of a smart-city development project in Canada, an advisory committee was set up by the region of Waterloo (i.e. the project initiator) to promote public participation in designing the project (Goodman et al., 2020). In another case, a local NGO had the role of ‘the official body of the extended citizen participation’ in the redevelopment of an old military site in Freiburg, Germany (Bagaeen, 2006). Most often, the depth of participation in this mechanism was at the level of consultation. However, there was some evidence of the potential for placation as well; for instance, a community advisory group evaluated project alternatives and provided a recommendation for the county in a facility-development project in Seattle, Washington, USA (van der Vieren et al., 2011).

Mechanisms utilised predominantly by citizens

The participation mechanism of **protests** is active opposition initiated by citizens. Specifically, citizens actively oppose or resist a project, certain elements of its scope or how it is managed. This participation mechanism was most evident in the project-planning phase, although some cases occurred in the front-end phase as well. The papers discussed cases of both successful and unsuccessful protests. In a discussion of the former, de la Motte (2007) presented a case of water-supply and wastewater treatment in which the local councillors’ protests forced a private company to arrange public consultations and discuss project plans more openly. Finally, even the Ministry of Internal Affairs intervened to change the initial privatisation proposal.

Like protests, **formal petitions and change demands** is a participation mechanism through which citizens seek to influence UDPs or the opinions of project stakeholders. Typical channels through which this kind of influence is sought include petitions (e.g. Barnes & Langworthy, 2004; Cuganesan & Floris, 2020) and appeals (e.g. Lidskog & Soneryd, 2000). A characteristic of this mechanism is unidirectional communication; that is, the purpose of statements is primarily influencing others instead of generating discourse between parties. As with protests, we identified both successful and unsuccessful attempts to gain influence with this participation mechanism. Examples

included the mayor not responding to letters from trade unions (de la Motte, 2007) and the abandonment of a UDP after fierce public opposition (Rubin & Carbajal-Quintas, 1995).

Mobilising resources consists of various approaches to gaining access to additional resources to support or oppose projects or to increase power or influence, for example. An empirical example of project support was a case in which project proponents (public officials) mobilised large groups of Colonia residents to show support for the project at a project-certification meeting (De Mello Lemos & Luna, 1999). Exemplifying more critical viewpoints, local residents formed activist groups to advocate for a certain project design in a transportation project in the USA (Barnes & Langworthy, 2004), and coalitions of local residents organised to oppose a road-infrastructure project in Australia (Cuganesan & Floris, 2020). Again, most instances of mobilising resources occurred in the project-planning phase, and they occurred to a lesser extent in the project-implementation phase.

Use of participation mechanisms across the project life cycle

Our analysis revealed that mechanisms of citizen participation were most frequently utilised during the project-planning phase. More specifically, of the 320 specific uses identified in our source articles, 197 (62%) occurred during the planning phase. With 72 identified uses of participation mechanisms, the front-end phase ranked second among life-cycle phases in terms of citizen involvement in UDPs. We identified a total of 44 uses of participation mechanisms during the project-implementation phase and the use of citizen-participation mechanisms during the project operations phase was extremely scarce; only seven occurrences (2% of all occurrences) were associated with this phase.

Discussion

As the main result of our literature-based study, we identify and scrutinise 16 mechanisms of citizen participation. The resulting framework and the descriptions of the 16 mechanisms provide a comprehensive summary of various approaches through which public participation in UDPs is enabled, supported or pursued. The few recent studies of stakeholder engagement in projects have typically prioritised the viewpoint of the focal firm by discussing stakeholder engagement at the level of organising such engagement (Lehtinen & Aaltonen, 2020) or with respect to the rationales for engaging and disengaging stakeholders (Lehtinen et al., 2019). Similarly, although some prior studies have homed in on a specific mechanism, such as public forums (Chow & Leiringer, 2020), no study has characterised the variety of citizen-participation mechanisms. Thus, our findings complement previous research

by providing a more comprehensive and nuanced account of the practices of engaging a specific type of stakeholder, that is, individual citizens, in projects.

Our further analysis of the 16 participation mechanisms reveals a highly uneven distribution of mechanisms over the UDP life cycle. Indeed, participation mechanisms are predominantly used during the planning phase of UDPs; fewer mechanisms are used during the front-end phase, and very few are used during the implementation and operation phases. The front-end phase is especially critical, because many decisions are made at that point (Arto et al., 2016; Edkins et al., 2013; Leite, 2022) and the belated involvement of relevant actors can create misalignments (Miterev et al., 2020). Similar issues are evident in other forms of citizen involvement, such as citizen participation in public budgeting (Ebdon & Franklin, 2006) or public crowdsourcing (De Crescenzo et al., 2021).

Implications for practice and policy

Our study highlights the necessity for involving citizens through a portfolio of diverse and partially overlapping engagement strategies. The identification of 16 distinct mechanisms for public participation suggests that practitioners should implement a variety of approaches, such as public events, workshops, and online platforms, to cater to different community needs and preferences. Furthermore, the findings indicate that participation tends to be emphasized in the project planning phase, highlighting the importance of prioritizing citizen engagement early in the project lifecycle. By ensuring that community insights shape project goals and designs from the outset, practitioners can mitigate conflicts and enhance project acceptance. In addition to these practical strategies, our findings highlight the importance of tailored communication methods. Utilizing various channels, including social media and traditional media, can help reach different citizen groups effectively.

Regarding policy, our observations advocate for the establishment of regulatory frameworks that mandate public participation in all phases of UDPs (including ideation, planning, implementation and operations). By formalizing citizen engagement requirements, governments can ensure that community input is not only welcomed but also integrated into decision-making processes. This regulatory support can significantly enhance the legitimacy and effectiveness of urban development initiatives. Moreover, there is a pressing need for capacity-building initiatives aimed at both citizens and project management professionals. Empowering citizens with knowledge about UDPs and equipping project teams with the capabilities necessary to facilitate engagement can enhance the depth and impact of participation. This dual approach fosters a more informed and active citizenry while also preparing project managers to navigate the complexities of public involvement. Finally, implementing evaluation and feedback mechanisms is essential

for refining participation strategies over time. Policymakers should encourage the development of feedback loops that allow citizens to express their views on the engagement process itself, fostering continuous improvement. By systematically evaluating the effectiveness of participation mechanisms, stakeholders can adapt and enhance their approaches, ensuring that public participation remains both meaningful and impactful.

References

- Adamson, D. (2010). Community empowerment. *International Journal of Sociology and Social Policy*, 30, 114–126.
- Alavijeh, R. D., & Ahmadi, A. (2018, July 26–27). Managing local communities in large projects, Appraisal of two complex projects in Iran [Conference presentation]. *Proceedings of the 2nd European Conference on Industrial Engineering and Operations Management (IEOM)*, Paris, France.
- Alter, R., Lewiecki, M., Renz-Whitmore, M., & Albright, D. (2008). Accountable public involvement: Partnership approach to proposed transportation project. *Transportation Research Record*, 2077(1), 46–53.
- Anderson, M., Meaton, J., & Potter, C. (1994). Public participation: An approach using aerial photographs at Ashford, Kent. *Town Planning Review*, 65, 41–58.
- Artto, K., Ahola, T., & Vartiainen, V. (2016). From the front end of projects to the back end of operations: Managing projects for value creation throughout the system life-cycle. *International Journal of Project Management*, 34(2), 258–270.
- Bagaeen, S. G. (2006). Redeveloping former military sites: Competitiveness, urban sustainability and public participation. *Cities*, 23(5), 339–352.
- Bailey, K., Grossardt, T., Ripy, J., Toole, L., Williams, J. B., & Dietrick, J. (2007). Structured public involvement in context-sensitive large bridge design using casewise visual evaluation: Case study of section 2 of Ohio River bridges project. *Transportation Research Record*, 2028(1), 19–27.
- Bakht, M. N., & El-Diraby, T. E. (2014). Hidden social networks that drive online public involvement in infrastructure construction: Case study of light rail transit projects in North America. *Transportation Research Record*, 2453(1), 84–93.
- Barnes, G., & Langworthy, P. (2004). Understanding and managing conflict in transportation project public involvement. *Transportation Research Record*, 1895(1), 102–107.
- Berntzen, L., & Johannessen, M. R. (2016). The role of citizen participation in municipal smart city projects: Lessons learned from Norway. In *Smarter as the new urban agenda* (pp. 299–314). Springer.
- Blakeley, G., & Evans, B. (2010). Citizen participation in East Manchester: From practice to theory. *Representation*, 46(3), 325–338.
- Busscher, N., Parra, C., & Vanclay, F. (2018). Land grabbing within a protected area: The experience of local communities with conservation and forestry activities in Los Esteros del Iberá, Argentina. *Land Use Policy*, 78, 572–582.
- Casello, J. M., Towns, W., Bélanger, J., & Kassiedass, S. (2015). Public engagement in public transportation projects: Challenges and recommendations. *Transportation Research Record*, 2537(1), 88–95.
- Chandra, A., Miller, C. E., Acosta, J. D., Weiland, S., Trujillo, M., & Plough, A. (2016). Drivers of health as a shared value: Mindset, expectations, sense of community, and civic engagement. *Health Affairs*, 35(11), 1959–1963.
- Chen, W., & Mehndiratta, S. R. (2007). Planning for laobaixing: Public participation in urban transportation project, Liaoning, China. *Transportation Research Record*, 1994(1), 128–137.

- Chi, C. S., Xu, J., & Xue, L. (2014). Public participation in environmental impact assessment for public projects: A case of non-participation. *Journal of Environmental Planning and Management*, 57(9), 1422–1440.
- Chow, V., & Leiringer, R. (2020). The practice of public engagement on projects: From managing external stakeholders to facilitating active contributors. *Project Management Journal*, 51(1), 24–37.
- Copus, C. (2003). Re-engaging citizens and councils: The importance of the councillor to enhanced citizen involvement. *Local Government Studies*, 29(2), 32–51.
- Corrie, E. W. (2013). From civic engagement to circles of grace: Mid-range reflection on teaching for global citizenship. *Teaching Theology & Religion*, 16(2), 165–181.
- Cuganesan, S., & Floris, M. (2020). Investigating perspective taking when infrastructure megaproject teams engage local communities: Navigating tensions and balancing perspectives. *International Journal of Project Management*, 38(3), 153–164.
- Cuppen, M., Broekhans, B., & Enserink, B. (2012). Public participation in EIA and attitude formation. *Impact Assessment and Project Appraisal*, 30(2), 63–74.
- De Crescenzo, V., Botella-Carrubi, D., & García, M. R. (2021). Civic crowdfunding: A new opportunity for local governments. *Journal of Business Research*, 123, 580–587.
- De La Motte, R. (2007). A tale of two cities: Public participation and sustainability in decision-making on water systems in two Polish cities. *Utilities Policy*, 15(2), 134–142.
- De Mello Lemos, M. C., & Luna, A. (1999). Public participation in the BECC: Lessons from the Acuaférico project, Nogales, Sonora. *Journal of Borderlands Studies*, 14(1), 43–64.
- Di Maddaloni, F., & Davis, K. (2017). The influence of local community stakeholders in megaprojects: Rethinking their inclusiveness to improve project performance. *International Journal of Project Management*, 35(8), 1537–1556.
- Ebdon, C., & Franklin, A. L. (2006). Citizen participation in budgeting theory. *Public Administration Review*, 66(3), 437–447.
- Edkins, A., Geraldi, J., Morris, P., & Smith, A. (2013). Exploring the front end of project management. *Engineering Project Organization Journal*, 3(2), 71–85.
- Eskerod, P., & Huemann, M. (2014). Advancing project stakeholder analysis by standing on the shoulders of giants. *PMI Research and Education Conference 2014: Standing on the shoulders of giants: In search of theory and evidence*.
- Fontaine, A. P. (2008). Public participation in the brownfield redevelopment process: Lessons learned in two case studies in Michigan, USA. *WIT Transactions on Ecology and the Environment*, 107, 233–242.
- Gandiwa, E., Heitkönig, I. M., Lokhorst, A. M., Prins, H. H., & Leeuwis, C. (2013). CAMPFIRE and human-wildlife conflicts in local communities bordering Northern Gonarezhou National Park, Zimbabwe. *Ecology and Society*, 18(4).
- Garde, A. (2014). Citizen participation, design competition and the product in urban design: Insights from the Orange County Great Park. *Journal of Urban Design*, 19(1), 89–118.
- Goodman, N., Zwick, A., Spicer, Z., & Carlsen, N. (2020). Public engagement in smart city development: Lessons from communities in Canada's Smart City Challenge. *The Canadian Geographer/Le Géographe canadien*, 64(3), 416–432.
- Grossardt, T. H., Bancroft, R. G., & Wormald, D. (2019). Bridging the quantitative-qualitative divide in public participation: A learning model approach. *Transportation Research Record*, 2673(1), 481–490.
- Hillier, J. (2018). Politics of the ring: Limits to public participation in engineering practice. *International Journal of Urban and Regional Research*, 42(2), 334–356.
- Hooton, M., Chang, P., Carter, M., Chan, S. Y., Chu, C. K., & Wong, W. M. (2011). Cross Bay Link—Public engagement in planning urban infrastructure. *Procedia Engineering*, 14, 108–116.

- Janssen-Jansen, L. B., & van der Veen, M. (2017). Contracting communities: Conceptualizing Community Benefits Agreements to improve citizen involvement in urban development projects. *Environment and Planning A: Economy and Space*, 49(1), 205–225.
- Kaulio, M. A. (1998). Customer, consumer and user involvement in product development: A framework and a review of selected methods. *Total Quality Management*, 9(1), 141–149.
- Keever, D., Frankoski, G., & Lynott, J. (1999). In the possibilities are the solutions: Assessment and implications of the public-involvement process during the environmental impact study of the Woodrow Wilson Bridge. *Transportation Research Record*, 1685(1), 135–143.
- Lehtinen, J., & Aaltonen, K. (2020). Organizing external stakeholder engagement in inter-organizational projects: Opening the black box. *International Journal of Project Management*, 38(2), 85–98.
- Leite, E. (2022). Innovation networks for social impact: An empirical study on multi-actor collaboration in projects for smart cities. *Journal of Business Research*, 139, 325–337.
- Letaifa, S. B. (2015). How to strategize smart cities: Revealing the SMART model. *Journal of Business Research*, 68(7), 1414–1419.
- Li, H., & de Jong, M. (2017). Citizen participation in China's eco-city development. Will 'new-type urbanization' generate a breakthrough in realizing it? *Journal of Cleaner Production*, 162, 1085–1094.
- Lidskog, R., & Soneryd, L. (2000). Transport infrastructure investment and environmental impact assessment in Sweden: Public involvement or exclusion? *Environment and Planning A*, 32(8), 1465–1479.
- Liu Wenling, W., Zhang, J., Bluemling, B., Mol, A. P. J., & Wang, C. (2015). Public participation in energy saving retrofitting of residential buildings in China. *Applied Energy*, 147, 287–296.
- Majumdar, S. R. (2017). The case of public involvement in transportation planning using social media. *Case Studies on Transport Policy*, 5(1), 121–133.
- Meyer, J., Barker, J. M., & Ishmael, K. (2001). Public participation and bridge type selection. *Transportation Research Record*, 1770(1), 173–180.
- Miterev, M., Jerbrant, A., & Feldmann, A. (2020). Exploring the alignment between organization designs and value processes over the program lifecycle. *International Journal of Project Management*, 38(2), 112–123.
- Mota, N. (2019). Álvaro siza's negotiated code: Meaningful communication and citizens' participation in the urban renewal of The Hague (Netherlands) in the 1980s. *Urban Planning*, 4(3), 250–264.
- Noyman, A., Holtz, T., Kröger, J., Noennig, J. R., & Larson, K. (2017). Finding places: HCI platform for public participation in refugees' accommodation process. *Procedia Computer Science*, 112, 2463–2472.
- Petts, J. (2006). Managing public engagement to optimize learning: Reflections from urban river restoration. *Human Ecology Review*, 13(2), 172–181.
- Prevost, D. L. (2006). Geography of public participation: Using geographic information systems to evaluate public outreach program of transportation planning studies. *Transportation Research Record*, 1981(1), 84–91.
- Riesch, H., Potter, C., & Davies, L. (2013). Combining citizen science and public engagement: The Open Air Laboratories programme. *Journal of Science Communication*, 12(3), A03.
- Rousseau, D. M., Manning, J., & Denyer, D. (2008). Evidence in management and organizational science: Assembling the field's full weight of scientific knowledge through syntheses. *Academy of Management Annals*, 2(1), 475–515.
- Rubin, R. A., & Carbajal-Quintas, B. (1995). Environmental regulation and public participation in project planning. *Journal of Professional Issues in Engineering Education and Practice*, 121(3), 183–186.

- Simonofski, A., Asensio, E. S., De Smedt, J., & Snoeck, M. (2017, July). Citizen participation in smart cities: Evaluation framework proposal. *2017 IEEE 19th conference on business informatics (CBI)* (Vol. 1, pp. 227–236). IEEE.
- Slootweg, R. (2018). Environmental impact assessment for wetlands: Stakeholders and public participation. In *The wetland book: I: Structure and function, management, and methods* (pp. 2059–2064). https://doi.org/10.1007/978-90-481-9659-3_266
- Talvitie, A., & Pearson, T. (1997). Public participation in the Helsinki crosstown artery project. *Journal of Advanced Transportation*, *31*(2), 185–199.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, *14*(3), 207–222.
- Tsuladze, L., Macharashvili, N., & Pachulia, K. (2018). SOS Tbilisi: Challenges to environmental civic participation in Georgia. *Problems of Post-Communism*, *65*(5), 327–343.
- Van der Vieren, M., Wheeler, R., & Namini, S. (2011). Case study: Public involvement outcomes in four seattle communities targeted for new combined sewer overflow facilities. In *Pipelines 2011: A sound conduit for sharing solutions* (pp. 277–285). [https://doi.org/10.1061/41187\(420\)27](https://doi.org/10.1061/41187(420)27)

3

NEGOTIATING NEIGHBOURHOODS?

Balancing sustainability goals in urban development districts

Susanna Hedborg

Introduction

Urban development is about extending or regenerating part of a city to create new neighbourhoods for citizens. Neighbourhoods are not just a site of new buildings – the built environment, but social spaces emerging in and between the buildings when citizens carry out their daily life (Lefebvre, 1991). Social space is not just a physical entity but its mutual constitution with social interaction from everyday practices. To ensure sustainable urban development – creating neighbourhoods that reflect both environmental and social aspects – research must look beyond planning and policy issues and also understand how the process of developing new buildings and infrastructure influences the new neighbourhoods of citizens. Metzger and Lindblad (2020) suggest dilemmas for sustainable urban development following from the ambiguity in the multiple actors' different practices that meet during the realisation of new urban districts. Moreover, the actors will have different goals, diverse values, and potentially contradicting decision-making processes.

In the Nordics, local government has a ruling role in extending and regenerating a city, for example, by giving out land allocations, issuing building permits, and planning and constructing local transport infrastructure. These activities enable to construct a built environment of new urban space. These urban spaces must be filled with life through living, working, using the spaces for new neighbourhoods to emerge – citizens turn built environment into neighbourhoods.

Multiple actors and activities will interact in the process from a perceived need by governments to develop new urban spaces in a city, that citizens can turn into valued neighbourhoods. Be that property owners, public and

private developers, contractors, material suppliers, consultants, civil society organisations, spatial planners etc. (Zakhour & Metzger, 2018). In creating the built environment, these actors circulate around planning, designing, and constructing new buildings and infrastructure, work traditionally carried out through projects (Bakker, 2010). In the age of new public management, this project logic has been heightened by local government dividing land into smaller plots to invite more actors and using land allocations as a strategic tool to make public and private developers responsible for realising the visions of the area, e.g., sustainability (Hedborg & Rosander, 2024).

This can also be seen through the lens of projectification of society where increased outsourcing and thinking through a project logic have shifted local governments' work to being dependent on a project ecology of actors (Grabher, 2004) carrying out public services of housing and urban society (Fred, 2015; Lundin et al., 2015). A project ecology is defined as *"interdependencies between projects and the particular firms, personal relations, localities and corporate networks from which these projects draw essential sources unfolds an organizational and physical space"* (Grabher, 2002, p. 246). For urban development carried out through a number of projects, e.g., construction and infrastructure, this means that actors and organisations (local government, property developers, construction firms, suppliers, etc.) are temporally organised in physical and organisational layers – just to be reorganised in upcoming projects. Thereby, also accounting for historical relationships and potential future collaborations, making a project ecology continuously reforming. Grabher's (2004) aim with project ecologies is to explore relationships beyond formal, e.g. contractual, to those informal relationships that are built up over time; thereby it is possible to follow with a contextual perspective (Grabher & Ibert, 2011). In this chapter, this will be bridged with Lefebvre's understanding of the urban as an emerging space following different actors' enacted goals and power in decision-making (Schmid, 2022).

Research is needed to critically analyse how organising through project ecologies of urban development influences sustainability in emerging neighbourhoods, in light of balancing different actors' goals and decision-making processes. Through revisiting a case study on the development of a new urban district using Lefebvre's (1991) triad of production of space as analytical lens, the chapter will discuss: *How do actors in a project ecology carrying out urban development account for the citizens when they negotiate sustainability goals?*

Key findings include negotiations between the local government and developers on their different organisational goals and the overarching goals of the new district, a new sustainable neighbourhood. Coordinating the social and environmental sustainability goals with the profitability of private actors was a major challenge for the actors in the project ecology, where the goals were reshaped during the process. Following this process, the

chapter illustrates how the negotiations are dominated by private property developers, focussing on finalising their construction projects, and thus overlooking citizens' interests and stipulated sustainability goals. Contributions are intended for urban planning research and practitioners by illustrating lessons learnt when having to balance the various goals of different actors within the project ecology, with those of citizens, to create a new neighbourhood. The rest of the chapter is organised by first presenting an overview of Lefebvre's understanding of space in urban society; thereafter we will revisit the case study following an urban development process in Stockholm. The chapter will end with a discussion on how the citizens' perspective is governed in contemporary urban development and how sustainability goals are balanced; this will lead to presenting implications for practice and policy.

An understanding of urban spaces and neighbourhoods through Lefebvre

Lefebvre's work on urban society is beneficial for discussions on the perspectives of citizens in sustainable urban development, since Lefebvre did not see urban space as mere physical entities but from the perspective of urban *social* space accounting for how physical entities are intertwined with economic, power, cultural, and social relationships (Leary-Owhin & McCarthy, 2020). Through Lefebvre's work on urban and space, it is possible to capture and analyse different actors' conflicting goals (Schmid, 2022). Below is an overview of his understanding of production of space and how his urban views have been used to understand urban development and citizens in urban society.

Production of space

To start, space is not a physical entity but mutually constituted through physical element and social interactions with everyday practices (Lefebvre, 1991), playing the same role as the English term *place*, which is spaces made meaningful by people (Cresswell, 2015). Presenting a triad of production of space, Lefebvre argues for a combined understanding of physical, dominant representation, and emotional interpretation of space (Cresswell, 2015), in detail (Leary-Owhin, 2016):

- *Spatial practice* is the physical element of urban space, including the urban development of capitalism and state governing, and the routines that conform with this representation. This first element is described as perceived space.
- *Representation of space* is the official understandings of urban space used for administration and analytical purposes. These are often in written forms,

produced by architects, planners, or engineers, such as maps or detailed development plans. Described as conceived space.

- *Spaces of representation* focus on the inhabitants, e.g. the citizens. This is the everyday life in urban space as understood by those being in the space. The understandings are not informed by the official understandings of the urban space, but rather from cultural meaning and emotional interpretations, often in opposition with the dominant representation of space. Described as lived space.

The triad entails conflicts and contradictions as themes important to explore when wanting to understand urban society (Leary-Owhin & McCarthy, 2020), highlighting its base in wanting social change from the neo-capitalist domination of urban society. Although this is the background for developing the triad to describe the production of space, it should be noted that it has since been widely used to explore urban society beyond explicit political focus. For example, Dobers and Strannegård (2004) use the lens to discuss how a piece of artwork problematising urban space is translated through it travels around the world, while others take a planetary focus exploring urban agriculture (Granzow & Shields, 2020) or mobilities (Scott, 2020). Regardless, the three intertwined elements of the production of space enable discussions on how, for whom, and on what background urban development is carried out, by putting the three elements as lenses on an urban phenomenon.

When asking questions about space to understand urban society, space should be seen as a process and not “*work of a moment*” (Lefebvre, 1991, p. 135), not neglecting the importance of accounting for history when exploring the production of space. Connecting society and spatial production, it is suggested to combine a top-down and bottom-up approach (Lee, 2022). Lastly, important to note in the understanding of production of space is how Lefebvre started his exploration as a criticism towards the then prevailing Newtonian focus on mathematical and geometric understanding of space, and somewhat controversially instead suggested space as simultaneous activities of mental, social, physical, and cultural (Dobers & Strannegård, 2004) – opening up for discussions on the problematics of urban space (Schmid, 2022).

Urban development through the perspective of production of space

Viewing urban development today from the triad of spatial practice, representation of space, and spaces of representation, it becomes visible how some “*dominant space ruling over dominated space*” (Lefebvre, 2009, p. 246), how new parts of cities are planned from the dominating spatial practices and representation of space, while the lived experiences of the citizens are subordinated. The empirical illustration in this chapter will show an example of this. However, there are examples of how cities have tried to include the

citizens' perspectives beyond their limited input during planning processes, for example how the sentiments from *Right to the City* (Lefebvre, 1996) have been tested in city development in Brazil in the 1980s (Leary-Owhin & McCarthy, 2020).

Reflections can also be made as to what can or should be planned and what is to be kept in-between and be left to the citizens to self-organise; Viegas (2020) discusses this from top-down and bottom-up production of space. Top-down production is the majority of urban development carried out according to ruling governments' logics with little representation of society, while bottom-up space is produced by communities as counteracts to government planning. Contemporary attempts to sustainable urban development are a balancing act between economic growth and protection of future livelihoods, comparable to Lefebvre's discussion of citizens' right to the city (Peacock & Allmendinger, 2020). Urban development is about "*practical matters relation to space*" but often with a narrow focus on "*the construction of buildings to the distribution of investments and worldwide division of labour*" (Lefebvre, 1991, pp. 9–10).

Empirical illustration

I will use an empirical example to allow a discussion on how the perspectives of citizens are discussed and cared for, when planned urban space is realised into a new built environment with the aim of becoming neighbourhoods filled with residents and everyday life. I revisit a case study that I carried out for my dissertation (Hedborg, 2022), with distance to the work – that time has enabled – and updated theoretical perspective, new insights become noticeable. The case is suitable for exploring contemporary urban development in the Nordic context, being one of the largest urban development districts in Sweden, aiming to be a model for similar areas. Combined with substantial social and environmental sustainability goals, it can be considered an extreme case (Flyvbjerg, 2006) activating numerous actors and mechanisms which enabled generation of ample information about the explored phenomenon.

The empirical material gathered (described in detail below) was reorganised in Nvivo and analysed with the new theoretical lens, following abductive reasoning (Dubois & Gadde, 2014). This reanalysis of the case study is largely based on Henri Lefebvre's book *The Production of Space* (Lefebvre, 1991) which develops theory to understand urban society (Leary-Owhin & McCarthy, 2020). In a first iteration, the material was re-read to identify instances of when the respondents discussed citizens' perspectives and sustainability in-between the projects, as the core interest of this analysis. Second, for the identified instances, I used the triad of production of space, elaborated in the previous section, to make sense of how the actors discussed the space they were developing. The findings revealed a lack of citizens' perspectives

and negotiations to reshape the goals established in the municipal planning process. Two such examples will be presented below, chosen based on their clear illustration of the identified issues. The reanalysis of the case study and previously explored perspectives (Hedborg & Karrbom Gustavsson, 2020; Hedborg & Rosander, 2024; Hedborg et al., 2020) sets the foundation for a discussion on societal relevance and practical implications from building new urban space through a project ecology. And hopefully pave the way to new questions.

Case description and methods

The case study was longitudinal following the development of a sustainable profiled urban development district in Stockholm, Sweden, called the Stockholm Royal Seaport. For five years, between 2016 and 2020, I followed municipal actors, public and private developers, contractors, and consultants through observations, interviews, and document studies. In total, 43 interviews were conducted, 31 hours of meetings and observations between the different actors, 60 hours of informal observations such as coffee breaks and site visits, and numerous planning and design documents from the municipality and the developers. The study was explorative and reflexive (Alvesson & Sköldbberg, 2009) and focused on how the actors planned, designed, and constructed the new built environment and how they must work together to create a functioning urban space.

The Municipality's goal with the Stockholm Royal Seaport, when finished, is to provide homes for more than 30,000 new residents and 12,000 new work places. In addition, the municipality has ambitious sustainability goals, focussing mainly on environmental sustainability with requirements on energy usage, building materials, logistics solutions, etc. for the developers to be given land to build a small part of the district. The development is carried out in parallel detailed development plans (zoning plans), stretching in time from 2010 to around 2030, each detailed development plan includes municipal infrastructure and ground work (converting brownfields) and around ten private and public developers housing construction projects. In the case study, I followed three of these detailed development plans in various stages, together covering phases from early planning, including signing land allocation agreements to finished construction, and handover to housing cooperatives (private) or rental agencies (often public).

The actors involved – and studied – in urban development are described as working in a project ecology, meaning that inter-organisational actors from different professions collaborate in parallel and sequential projects (Söderlund, 2004). In order to realise a new urban development district, numerous actors can, of course, be involved – governmental entities, private firms, NGOs, civil society, individual citizens, etc. In the present case, the focus was

to follow the process from municipal planning, to land allocation to private and public property developers and their outsourcing to construction firms and suppliers who construct the new built environment. Through previous analysis (Hedborg et al., 2020) these actors can be described as partaking in a project ecology, where some actors will have past relationship and some hope for future collaborations. Thereby, practices are repeated, shared, and continuously developed through their project lifecycles. The citizens were not found to be acting in the project ecology, but indirect through their democratic rights in local government and the citizens' consultations during detailed development plans having been carried out by the municipality. In other words, the municipality had the primary responsibility to represent the citizens.

A practice perspective (Giddens, 1984) guided my material collection and overall analysis. Viewing structure and agency as mutually constituted, where one continuously influences the other, is in line with Lefebvre's description of space neglecting "*dialectic of opposites*" and having social and physical aspects (Lefebvre, 1991, p. 128). With this in mind, I will now present empirical findings on how the actors involved in developing the built environment, aiming to become new neighbourhoods, have accounted for the citizens.

The process to construct a new built environment

With ongoing urbanisation and high housing demand in the Swedish capital, the Municipality of Stockholm continuously initiates large urban development districts on the outskirts of central Stockholm. Similar to other European cities, land is scarce, and over the past 20 years, brownfields have been converted into new urban districts. The Municipality owns most of the land they convert and finance the large-scale projects through land allocation agreement with public and private developers. The land allocation process, often carried out through competitions for attractive plots, runs in parallel with the regulated land-use planning processes where the citizens are invited in several steps to come in with opinions on the comprehensive plan, the area regulation, the detailed development plan, and for geographically close neighbours the individual building permits (Boverket, 2023). In addition, the opinions of the citizens are also indirectly covered through the democratic process, since municipal planning is governed by local politicians, who have the decision rights of land allocation agreements. To summarise, it is regulated that the citizens' opinions are cared for when deciding on land allocation and the detailed development plan – the legal documents setting the framework for what will be built. What the two examples below will illustrate is that even though the plans were set with ambitious social and environmental sustainability goals, having allowed the citizens to voice their perspectives both directly and indirectly, the plans were reshaped through negotiations by the

developers in the following process to realise the new urban district through construction projects.

So, what happened when the decided plans were carried out in practice, was the perspective of the citizens brought in during design and construction? The findings of Stockholm Royal Seaport show that the private and public developers who have gotten land allocation agreement became key players in what would actually be built. When the municipality divides their land into small plots and allocates to different developers, the project ecology will include many actors each having their own interests. The findings show how the developers became a group who came together to negotiate with the Municipality to change aspects in the land allocation agreements that changed the urban space for the citizens.

A first example is the location, size, and management of the garages of the new apartment buildings. According to the land allocation agreement, underground garages were to be built below each apartment block, consisting of two to three buildings, each building being carried out by different developers. However, the garages would stretch over the entire block, why the developers had to design, construct, and plan for facility management together. Moreover, the Municipality had identified a wish from the citizens to have car-free streets, why each garage would only have one exterior access point for cars. The developers thought that this would complicate their construction project processes, having to build together, so they opted for a change in their agreements to convert an old cavern a few hundred metres away from the district to a large public parking garage. The developers argued for lower cost for them and more parking spaces for visitors. Negotiations between the developers and the municipality were ongoing for more than a year through meetings and written letters from the group of developers to the Municipality. Only once during these meetings was the citizens' perspective raised, apart from the Municipality arguing to stick with the land allocation agreement and the detailed development plan. A small private developer specialising in building apartments for retirees was hesitant towards the cavern, arguing that their residents would not feel safe a night in a large cavern garage and having to walk in the dark to their car. In the end, the majority voice was heard and with the extensive in-house expertise of a few large developers they put forward analysis and design documents convincing the Municipality to go against the regulated documents – it was decided to build the cavern garage.

A second example is how the realisation of the built environment is left to the developers – governed by financial profit – was the construction logistic approach agreed on in the land allocation agreement but not followed by the developers and the contractors. To care for citizens travelling through the urban district under development and the incoming residents in the completed housing buildings, the Municipality initiated a logistics organisation responsible for safety measures between the construction sites and the completed

buildings and road, as well as coordinating all material transports to and from the sites going through their depot situated at one end of the district to minimise traffic within the district. After a short period, developers who had tight time schedules and detailed individual design solutions to meet their financial goals became unhappy with the logistics organisation, saying that they paid more than normally for the logistics services and needed control over their material deliveries to meet their deadlines and that they did not want to trust an outside organisation for this. The Municipality once again caved, and it became optional to sign up for all services the logistics organisation had, while a small fee was still mandatory to pay for safety measures such as fences around the construction sites.

These examples illustrate how developers, private or public, shape the built environment, becoming the urban space that citizens will form in their neighbourhoods. In [Lefebvre's \(1991\)](#) words, developers are guided by only capitalist goals when creating urban space, rather than a more complete understanding of urban *social* space, which also accounts for everyday life of citizens. This will now be discussed and elaborated on in further detail in the next section.

Governing in urban development project ecology

Governing the citizens' perspective

The empirical illustration shows that letting a project ecology carry out the work to create a new urban district can redirect the goals established when local government planned for the new urban space, through the regulated land use planning process. Although construction has traditionally been project based, projectification has led to increased outsourcing and inclusion of more private actors to carry out public services, such as housing ([Fred, 2015](#)). The case discussed here shows how private developers largely form the new urban space by having control of carrying out the built environment, being the once with financial means. From a Lefebvrian lens (1991, 1996, 2009) this is discussed through dominating neocapitalism; here spatial practices and space representation have precedence over the lived space of citizens, the spaces of representation. While the citizens' perspectives are considered during land use planning, the financial power of developers has the ability to overrule previous decisions, in re-negotiations during the latter part of decision-making processes.

The current organising of urban development through project ecologies includes more actors in the process of developing urban society, which could be beneficial in getting different perspectives on what and how urban space should look like. The empirical example shows how the organising has created a strong group of actors in the private and public developers, largely

controlling the decision-making process through negotiations with local government. Although project ecologies open up for a variety of actors to be included in the development process, it must still be seen as a top-down approach to developing urban space where what the citizens want risks getting lost (Viegas, 2020). Bottom-up development of urban space is largely associated with self-produced neighbourhoods outside governmental control (Viegas, 2020); however, with the need to rethink society to tackle the climate changes, it might be time for radically new approaches to urban planning and development, be that top-down, bottom-up, or something in-between.

Balancing sustainability goals

Keeping a little on the topic of sustainability, Lefebvre's (1996) focus was largely on social justice as he lived and worked before global climate change became the most pressing issue for our joint society. Today, it is about creating global justice within ecological boundaries (Raworth, 2017). Contemporary urban development – illustrated through empirical examples – can be concluded to lack inclusion of spaces of representation, the multiple lived experiences of citizens (Lefebvre, 1991), indicating the need to rethink the project ecology of actors involved in development processes. Ecological sustainability in urban development is mainly expressed in the form of written documents by officials under the dominant representation of space. Reflecting on this is what would happen if lived experiences of citizens were included in planning and designing ecological sustainability in urban development. The empirical illustration indicates that giving too much freedom to private-profit-driven developers risk decreased sustainability goals during the design and construction. On the other hand, if lending all power to citizens, individual choices might be chosen over sustainability transition. There needs to be a balance of control and flexibility between government entities, for-profit organisations, and citizens.

Implication for practice and policy

This chapter has revisited a case study, which followed how the built environment was planned, designed, and constructed through a project ecology of actors put together from a Municipality's diverse land allocations, through the lens of *The Production of Space* (Lefebvre, 1991), to initiate a discussion on how the perspectives of citizens are cared for in contemporary urban development in Sweden. The findings show how sustainability in development of urban space is negotiated between municipality and developers, which largely neglects the lived experiences of citizens – those who turn built environment to neighbourhoods. Contributing to scrutinize how contemporary urban development is largely based on the interest of private and public

developers, that is, financial profits. This suggests needs for balancing control and flexibility between government entities, for-profit organisations, and citizens. Implications from this for practice and policy include the following.

- The first implication is for municipal planning departments to reflect on what consequences contemporary land allocation, dividing planned urban areas into plots each allocated to different private and public developers, will have on the citizens moving into the new built environment. How citizens' perspectives can be increasingly cared for in land allocation agreements to minimise the risk of having a powerful financial group of developers negotiating changes during the later stages of the development process, potentially at the risk of citizens' interests.
- The second implication is towards developers; through the production of space lens, they can get a framework to understand how their part of developing the built environment will influence the citizens' lived experiences. For developers with a long-term perspective of facilitating their constructed building, this can be aided by letting the citizens influence the planned built environment throughout the development process.
- The third, and final, implication is towards urban researchers, practitioners, and political actors, in light of sustainability, to reflect on how the planning process could look radically different to include social justice within planetary boundaries. Finding a balance between top-down regulation and a bottom-up citizen approach to ensure sustainable transition affords further investigation.

References

- Alvesson, M., & Sköldböck, K. (2009). *Reflexive methodology: New vistas for qualitative research*. Sage Publishing.
- Bakker, R. M. (2010). Taking stock of temporary organizational forms: A systematic review and research agenda. *International Journal of Management Reviews*, 12(4), 466–486.
- Boverket. (2023). *Planning process*. Boverket. <https://www.boverket.se/en/start/building-in-sweden/swedish-market/laws-and-regulations/planning-process/>
- Cresswell, T. (2015). *Place: An introduction*. John Wiley & Sons.
- Dobers, P., & Strannegård, L. (2004). The cocoon—A traveling space. *Organization*, 11(6), 825–848.
- Dubois, A., & Gadde, L.-E. (2014). “Systematic combining”—A decade later. *Journal of Business Research*, 67(6), 1277–1284.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219–245.
- Fred, M. (2015). Projectification in Swedish municipalities. A case of porous organizations. *Scandinavian Journal of Public Administration*, 19(2), 49–68.
- Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. University of California Press.

- Grabher, G. (2002). The project ecology of advertising: Tasks, talents and teams. *Regional Studies*, 36(3), 245–262.
- Grabher, G. (2004). Temporary architectures of learning: Knowledge governance in project ecologies. *Organization Studies*, 25(9), 1491–1514.
- Grabher, G., & Ibert, O. (2011). Project ecologies: A contextual view on temporary organizations. In P. W. G. Morris, J. Pinto, & J. Söderlund (Eds.), *The Oxford handbook of project management*. Oxford University Press.
- Granzow, M., & Shields, R. (2020). Urban agriculture: Food as production of space. In *The Routledge Handbook of Henri Lefebvre, The city and urban society* (pp. 287–297). Routledge.
- Hedborg, S. (2022). “It’s in the between”: Inter-project organising in project ecologies. KTH Royal Institute of Technology.
- Hedborg, S., Eriksson, P.-E., & Gustavsson, T. K. (2020). Organisational routines in multi-project contexts: Coordinating in an urban development project ecology. *International Journal of Project Management*, 38(7), 394–404.
- Hedborg, S., & Karrbom Gustavsson, T. (2020). Developing a neighbourhood: Exploring construction projects from a project ecology perspective. *Construction Management and Economics*, 38(10), 964–976.
- Hedborg, S., & Rosander, L. (2024). Self-organizing in urban development: Developers coordinating between construction projects. *Construction Management and Economics*, 42(2), 116–130.
- Leary-Owhin, M. E. (2016). *Exploring the production of urban space*. Policy Press.
- Leary-Owhin, M. E., & McCarthy, J. P. (2020). *The Routledge Handbook of Henri Lefebvre, The city and urban society*. Routledge.
- Lee, J. (2022). A multi-scale perspective on production of space: A critical review of urban design. *Cities*, 121, 103497.
- Lefebvre, H. (1991). *The production of space* (Vol. 142). Oxford Blackwell.
- Lefebvre, H. (1996). The right to the city. In E. Kofman, & E. Lebas (Eds.), *Writings on cities*. Blackwell.
- Lefebvre, H. (2009). Space and state. In N. Brenner, & S. Elden (Eds.), *State, space, world: Selected essays*. Minnesota University Press.
- Lundin, R. A., Arvidsson, N., Brady, T., Ekstedt, E., Midler, C., & Sydow, J. (2015). *Managing and working in project society*. Cambridge University Press.
- Metzger, J., & Lindblad, J. (2020). Introduction: A practice-centered approach to dilemmas of sustainable urban development. In *Dilemmas of sustainable urban development* (pp. 1–20). Routledge.
- Peacock, S., & Allmendinger, P. (2020). Ownership: Delivering sustainable development: Landownership and accountability in Cambridge. In *Dilemmas of sustainable urban development* (pp. 175–193). Routledge.
- Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st-century economist*. Chelsea Green Publishing.
- Schmid, C. (2022). *Henri Lefebvre and the theory of the production of space*. Verso Books.
- Scott, N. A. (2020). Ecologising Lefebvre: Urban mobilities and the production of nature. In *The Routledge Handbook of Henri Lefebvre, The city and urban society* (pp. 298–308). Routledge.
- Söderlund, J. (2004). On the broadening scope of the research on projects: A review and A model for analysis. *International Journal of Project Management*, 22(8), 655–667.
- Viegas, S. L. (2020). Spaces of resistance in Luanda: ‘How do [small] gains become prisons?’ An analysis from a Lefebvrian perspective. In *The Routledge handbook of Henri Lefebvre, the city and urban society* (pp. 124–133). Routledge.
- Zakhour, S., & Metzger, J. (2018). From a “planning-led regime” to a “development-led regime” (and back again?): The role of municipal planning in the urban governance of Stockholm. *DisP - The Planning Review*, 54(4), 46–58.

4

PARTICIPATION IN URBAN REGENERATION PROGRAMMES

The case of Trondheim, Norway

Vedran Zerjav, Govert Valkenburg and Morten Gjerde

Introduction

Similar to other countries across Europe, in Norway, there is a government initiative of urban regeneration to which local municipalities can apply for funding support to stimulate lasting improvements in services available to residents and in the environmental quality of local settings. The funding targets neighbourhood units, which are manageable in scale, coherently recognisable and expected to give access to many of the daily services residents require.

One of the often-cited aspects of government urban development and regeneration initiatives is the participation of citizens in co-creating solutions with planners. But despite the widely cited benefits of citizen participation methods, their implementation is often challenging (Legacy, 2017; Leino & Laine, 2012; Monno & Khakee, 2012). In project management literature, participation is often discussed in the context of project stakeholders (Di Maddaloni & Davis, 2017; Eskerod et al., 2015; Vuorinen & Martinsuo, 2019). While there is literature on participation in planning and project management research, most of the focus has been on new urban development rather than urban regeneration.

Urban regeneration is typically discussed in terms of funding physical redevelopment and other interventions in deprived urban areas (Bailey, 2012; Couch et al., 2011). Regeneration programmes emerged in North American cities in the mid-20th century, as urban policy sought to address the challenges they faced as their industrial base shifted from secondary to tertiary and quaternary sectors. The aim of urban regeneration initiatives is to alleviate the high levels of socioeconomic deprivation that target areas

have relative to their wider urban or regional contexts. The typical arrangement in an urban regeneration initiative would be led by the public sector but incorporate private and community actors in achieving its objectives (Bailey, 2010; Lawless & Pearson, 2012). In such a way, urban regeneration aims to create improvements across a plurality of dimensions of an existing area of a city or region (Ciaramella & Dall'Orso, 2021) with projects most often configured to address social and economic conditions before physical changes can be proposed. As a consequence, urban regeneration projects are more complex, multilayered and uncertain compared with traditional new urban development or construction (Yu & Kwon, 2011). Against this backdrop, there is relatively little understanding of the challenges of participatory urban regeneration initiatives, where multiple institutional and community actors cooperate in the planning process. The aspiration of such participatory programmes is to engage local communities as active partners in the regeneration of their own neighbourhoods, rather than considering them passive recipients of services delivered to them by the municipal government (Bailey, 2012; Lawless & Pearson, 2012). An important intention of active citizen participation in urban regeneration schemes is to avoid displacement of existing communities and processes of *urban gentrification*, which can often follow urban regeneration programmes (Hochstenbach & Musterd, 2018; Redfern, 2003; Shaw, 2008).

Urban regeneration policies are implemented through one or several projects (in which case they are often referred to as programmes), organised around distinct goals, limited resources, and clearly defined stakeholder groups to work with (Jacobsson et al., 2015; Lundin et al., 2015). Existing research points to the importance of the so-called *front end* of infrastructure projects as the site with the most potential for value creation (Matinheikki et al., 2016; Williams et al., 2022; Zerjav et al., 2021). Literature on citizen participation in projects suggests that the most common timing for the inclusion of a variety of partners in a co-creation process is in the early project stages (Ahola et al., 2021; Toukola et al., 2023). In keeping with the theoretical argument on participation in the front end of projects, we focus in this chapter on the processes and challenges of an urban regeneration scheme implemented by a local authority (Trondheim Municipality) in the Nordic institutional and social context.

Although citizen participation in policy implementation is often advocated as a win-win-win scenario benefitting local communities, city administration and the general public, it is no secret that achieving an effective participation process is fraught with tensions between the different facets of any policy initiative: descriptive (what is the case?), prescriptive (what should be done about it?), and performative (a policy enacts a reality that it then acts upon) (Scott, 1998; Voß, 2014). This is no different in projects that have urban regeneration as their objective. Their front end is shaped by policy objectives,

as they are defined by planning actors (Phillips & Oswick, 2012). In urban regeneration projects, this translates into the definition of a problem situation where the standard of a deprived neighbourhood or area should be improved. Literature on planning and design refers to this process as a problem-solution space, whereby the definition of the problem and the preconceptions of solutions to the problem are tightly linked to each other (Crowley & Head, 2017; Dorst, 2011).

Many participatory urban regeneration projects aim to achieve active involvement of local communities to enable (a) a more effective process through inclusion, (b) to rebuild trust between the local communities (particularly marginalised and deprived ones), the general public and the municipal government as a provider of public services and urban space, and (c) to achieve distinct positive outcomes for both the communities and the city (reduction of levels of deprivation, crime rates, health indicators, etc.) (Bailey, 2010; Lawless & Pearson, 2012).

Given the relative lack of empirical studies on citizen participation in urban regeneration projects, our aim is to explore the structure and activities of participation in an urban regeneration scheme, which can be representative of the Nordic urban planning and governance context. To this end, we use the setting of Trondheim Municipality in Norway and their strategic ten-year area upgrade and urban regeneration programme introduced in 2021. This includes a broad programme of investment to support three neighbourhood communities, two of which are in their early stages and will be covered in our analysis, while the third has not begun yet and therefore is not part of the analysis. While the programme overall has only started, it entails an extensive engagement exercise in the intervention areas, including citizen participation in the front end of the projects to define goals and priorities of the interventions.

Our analysis of the urban regeneration programme in Trondheim focuses on (a) the policy rationale with its intended outcomes and (b) the engagement and partnering structures and process for citizen participation. Specifically, following Hofer and Kaufmann (2023), we will explore the *actors, aims and arenas* that define the participation process in the urban regeneration programme.

We anticipate that applying a novel conceptual framework to explain the complex participation processes of the urban regeneration programme will be valuable for researchers, policymakers and practitioners engaged with citizen participation in their programme delivery. In the next section, we address some of the challenges of participatory processes as discussed in planning and stakeholder management literature before outlining our own approach, focusing on participation in the front end of the programme and the *actors, aims, and arenas framework* to analyse the participation in area regeneration programme settings. We then introduce the illustrative case study of the

Trondheim urban regeneration programme and go on to analyse the planned participation strategy in the initiation of the programme. We continue by discussing some of the challenges in a more generic citizen participation setting and conclude with brief advice for policymakers and practitioners.

Citizen participation and its challenges

Literature on participation has been critical about naïve assumptions on civic engagement, elaborating on many examples of failed expectations with respect to citizens taking part in participation exercises. One thread running through these critiques seems to be that, despite the administrators' best intentions, it is often the case that the citizens themselves are not included in the process of establishing the context for participation. Even if the idea is to 'talk with them' setting up that talk can boil down to 'talking about them'. In consequence, various arrangements underlying the participatory situation do not match the lives and perspectives of 'the citizen'. One crucial mismatch might be in the identity of the citizens themselves or the way they are positioned and identified in the process. As [Pandey and Sharma \(2021\)](#) show, participatory situations may reduce the participating citizens to a single-dimensional function, for example, as suppliers of raw materials, such as agricultural waste in the case of renewable energy projects. If the participation process is flawed and the citizens have no opportunity to bring in their considerations, the only possible intervention left to them is to vote with their feet and walk off from the meeting table.

A second way in which citizens may de facto be excluded is through the framing of the discussion about the future, in which citizens may not have the ability to participate. As [Krzywoszynska et al. \(2018\)](#) show, it may happen that the participation setting is shaped with a very specific notion of what the future may bring and a very specific notion of the frameworks by which the future is to be evaluated. While a sense of inevitability and necessity of change can often underpin the narratives of urban development programmes, the future as understood by citizens may inherit the substance and trajectory of the lives they currently live rather than the envisioned futures. In such cases, the citizens, even if they are enthusiastic about participating, can have a hard time presenting their ideas and bringing their interests over the footlights.

A third possible pitfall in shaping citizen participation is in the assumption that citizens are available to participate. Apart from the practical fact that citizens may have a working and family life that prevents them from spending time in engagement events such as town hall meetings, they may also have numerous other reasons to simply not be interested. A crucial consideration is whether or not the *issue* is of personal concern to them. From a pragmatist tradition, the understanding has emerged that such *issues* are

crucial in assembling publics (Marres, 2007). Moreover, neither the issue nor the (potential) public are pre-given entities, but instead must be seen as constructed through a political process (Chilvers & Kearnes, 2016). This construction process needs to be reflexive on what it assumes and what it produces; it needs to be situated and properly connected to the context where it matters; it needs to be democratically sound in what it includes and excludes, and it needs to explicitly care for participation as a democratic institution (Chilvers & Kearnes, 2016).

Towards a pragmatist positioning of participation in urban regeneration

Urban regeneration initiatives are almost always predicated on a definition of a problem situation to which the proposed interventions are a solution (Dorst, 2011). However, planning problems are often ‘wicked’ in that a problem is not uniquely definable without preconceiving a solution for it and vice versa (Crowley & Head, 2017; Farrell & Hooker, 2013). In those circumstances, it becomes relevant to consider the role of the citizen in the planning and execution of urban regeneration. Given the wicked nature of the planning problem, participation in the definition of the problem and its solution will be mainly restricted to the formal actors of the planning process, rather than non-expert participants. The acknowledgement of the limited role of the citizens, being subservient rather than equitable partners in how much they can influence the planning process, has led to discussions on the ‘crisis of participatory planning’ (Legacy, 2017; Monno & Khakee, 2012). It has also led to increasing scepticism on the effectiveness of various participation instruments as they can become co-opted by political interests (Arnstein, 1969). Despite these criticisms, there have also been discussions to consider citizen participation as a way to increase the democratic legitimacy of the planning process (Zakhour, 2020) as opposed to participation as an implementation instrument to achieve the goals of the planning function (Alfasi, 2021), political or otherwise. Similar debates have taken place in the literature on organisation and management, where the role of key organisational and business stakeholders has been seen as either instrumental (i.e. for achieving organisational goals, including the profit motive) or normative (i.e. holding an intrinsic value beyond the profit and other motives of the organisation) (Donaldson & Preston, 1995). In line with the critical debate on the role of the participatory processes in planning and whether it is primarily effectiveness- or legitimacy-driven, we take citizen participation pragmatically, as part of the broad planning process, instrumental for the achievement of policy goals but at the same time normatively necessary for the implementation to be legitimate. We thus focus on citizen participation, as it is implemented in its various forms and with multiple goals, particularly in the front end of urban regeneration

projects (Toukola et al., 2023; Williams et al., 2022). Such a view of citizen participation is focused on (a) elaborating on the ‘how’ of participation and (b) understanding the role of the ‘citizen’ that is its main protagonist.

While citizen participation in policy formulation and definition is constrained to an indirect input (i.e. through the electoral system), in the implementation of policy and particularly at the front end of projects, participation can have a more direct and active role. This active input is centred around the ‘how’ of the implementation, as opposed to the ‘why’ or ‘what’ of the policy, which are typically set out by the focal actors of the planning process (municipal or government planning agencies). It is this direct and active involvement in participation that we are interested in exploring in more detail here. In theory, such participation at the front end of the project will catalyse active engagement of the public and other actors in the planning decisions, helping to make the process transparent while opening some aspects of the problems and their solutions to consideration by non-experts (Habermas, 2022; Hofer and Kaufmann, 2023). In an urban regeneration setting, achieving the engagement of various public actors around planning issues and their solutions can be a goal in its own right, whether or not it can be attributed to the achievement of instrumental goals or broader democratisation of the planning process (Innes & Booher, 2016).

Following a conceptual framework developed recently by Hofer and Kaufmann (2023), we choose to focus on *actors*, *aims* and *arenas* in the definition of participation in this research. See Figure 4.1. The actors involve subjects that take part in participation, their roles and recruitment. Aims encompass issues to be addressed, alongside their rationales and desired outcomes. Finally, arenas define the spaces, format and rhythm of engagement, which

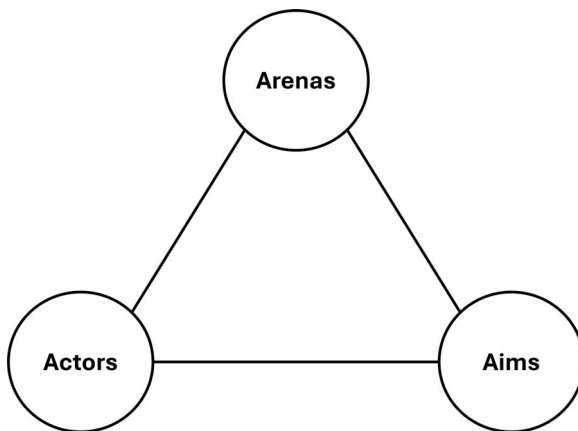


FIGURE 4.1 Participation triangle simplified from Hofer and Kaufman (2023)

shape participation. We use this framework to further break down our illustrative case of Trondheim urban regeneration programme.

Illustrative case: Actors, aims and arenas of participation in the Trondheim Urban Regeneration Programme

The Trondheim urban regeneration programme focuses on three target neighbourhood areas of the city and, as such, is a comprehensive set of project interventions. As noted above, our analysis is focussed on two of these. Citizen participation and engagement are central features of the programme and the principal reason for selecting it for our analysis. Rather than drawing on formal analytical protocols for case study research, our analysis is broadly informed by our engagement with the programme team of Trondheim Municipality over a period of 18 months around the planning and implementation of the urban regeneration initiative. We draw on three sources of data in the early development phase of the programme: general media coverage in the local press, official municipal reports on the progress of the project and ongoing engagement with the municipal officials involved in the delivery of the scheme.

The urban regeneration programme is designed to improve living conditions and address the socio-cultural and physical landscape of three selected areas of the city (Kjølle et al., 2022; Loe et al., 2022; Trondheim Kommune, 2024). These neighbourhoods are unique in many respects, but they also share a concentration of socio-cultural and economic challenges in addition to development opportunities that can arguably be captured through an urban regeneration initiative. The neighbourhoods each face challenges related to maintaining a stable and cohesive community. In part, this can be traced to high proportions of rental accommodation, which contributes to a transient population and potential instability in the community. Social dynamics and housing needs in both areas arise through the relatively high percentages of young residents, including students. Earlier studies for the two of the neighbourhoods have outlined the socioeconomic conditions that are to guide the initiatives there. These include poor performance in the areas of health outcomes, income levels, statutory overcrowding and crime rates (Kjølle et al., 2022).

Challenges identified in background reports for the third area pertain to ongoing conversions of existing apartments into smaller, more spartan units aimed at the student market. The spatial and economic outcomes of such conversions make it difficult for families that the municipality would like to attract into the area to find appropriate, long-term accommodation.

Following Hofer and Kaufmann (2023), our analysis focuses on the relationships and interactions between the municipality, as the entity that implements the urban regeneration initiative, and the actors, aims and arenas of

participation. Built on this conceptual model, we further outline Trondheim Municipality's plan for orchestrating and arranging participation across the programme areas.

Actors include a multifaceted and relatively decentralised array of subjects, including the municipality organisation itself, externally organised subjects and the general public. The first group comprises primary activity areas of service delivery functions within the municipality organisation such as city development, health and care, social services, education, industry, and sports and culture. The second group includes external organisations which complement the municipality's activity areas such as county-level government, welfare and employment, child and family support and other social services and law enforcement agencies. Finally, there is a presence of a broad range of local and community organisations, such as schools and nurseries, non-profit organisations, the local church, housing and residential owner associations, student societies and small business representatives. The role of the different subjects is to represent different institutional and community-level interests and to encourage engagement across the activities of different subjects around the regeneration programme. Enrolment in participation mainly occurs through the organised actors who are expected to engage with the community on the ground based on the goals and arenas for participation.

Aims include the ambition for the regeneration programme to transform the target neighbourhoods into more liveable, safe, and vibrant communities, where all residents can thrive, while maintaining and emphasising cultural diversity. Some of the elements of the initiatives include: (a) enhancement of physical infrastructure, including roads, parks, and public buildings to improve both aesthetics and functionality, making the neighbourhood more attractive and liveable, (b) implementation of measures aimed at improving safety, such as better lighting in public areas, increased surveillance, and community policing initiatives, (c) development of green spaces to provide recreational areas for residents and improve environmental sustainability, (d) launch of social programs focused on education, employment, and health services to support the community's most vulnerable groups and (e) efforts to stimulate local economic growth through support for small businesses and the creation of job opportunities, particularly in sectors that benefit from the neighbourhood's unique cultural characteristics.

Other aims also include boosting liveability and local environmental quality, such as air, noise and dust pollution, and addressing the lack of public outdoor spaces as a result of a dense traffic network surrounding some of the areas. In addition, it includes creating places for people to live, meet, interact and exercise across boundaries of their socioeconomic status. Long-term living conditions for present and future generations are planned to be addressed with less dense residential developments as density comes at the cost of deteriorating living conditions. The regeneration programme is planned

to last until 2031, and it comprises initiatives at multiple levels of where the different area projects can complement each other and leverage each other's strengths and learning opportunities.

Arenas for participation are designed for each regeneration area as working groups and collaborative forums that gather participants who can contribute input to the planning and implementation process. This is planned to occur as exchange and collaboration across boundaries and amongst the different actors. Broad participation themes are derived from the municipality's long-term strategic and operational objectives related to service development and delivery: neighbourhood development, social housing, area-based social work, social entrepreneurship and employment. Themes are used as municipality-facing clusters and meeting points for specific project initiatives which support organisational learning and capability development. Specific project interventions include traditional infrastructure investment projects (transport, recycling facilities, parks, public buildings) and interventions to enhance community standards and socioeconomic equity (art and culture events, incentives for enhancing outdoor lifestyle, enhancing employment opportunities at the neighbourhood level). In addition to those, there is a programme group for each regeneration area where the neighbourhood actors, including social service and community organisations, meet three to four times a year.

Such a broad participation model is at the heart of the front end of the regeneration programme with Trondheim Municipality's focus on the creation and support of the set of arenas that enable participation to occur seamlessly. The process is one of experimentation through trial and error, where different groups and actors are engaged within and outside of these established groups, and where dialogue across the groups is encouraged. This is a process of involvement and engagement with the main goal of building community capacity for participation as well as encouraging the local community to interact and collaborate across institutions and service providers.

Nonetheless, there are two underlying assumptions in this approach. The first one is that participation is inherently desirable and welcomed by the various subjects and that local community participants and residents will be involved as a secondary outcome of including the representatives of organised community groups in the engagement forums. Second, there is an assumption that arranging a complex participation process across a myriad of actors will justify its costs and that it will lead to valuable organisational learning. These issues link back to our critical review of challenges in participation in the second section, which we further elaborate on in the following section.

Discussion and conclusions

Our study outlines the front end of the implementation of a ten-year policy programme for urban regeneration in Trondheim. The interventions proposed

and undertaken correspond to the generally agreed-upon good practices of citizen participation in urban regeneration. In that sense, Trondheim Municipality's urban regeneration programme is a success story. However, we also want to discuss more generic issues pertaining to value that participatory programmes can bring to their actors and implementing bodies. For example, the stated main benefit of participation for the local and community actors is to enable engagement across boundaries of their remit and activity and through an equitable inclusion of local community members. This is assumed to improve cooperation between the community-level and state-institutional actors, leading to improvements in community capacity and socioeconomic deprivation. As previously discussed, however, there is considerable debate as to whether participation activities, despite their best intentions, always achieve those broad-reaching goals. In a worst-case scenario, poorly conceptualised and structured participation efforts can lead to disenfranchisement of the actors. For example, they may perceive that their input is not valued, that their contributions are solicited on a poorly defined problem or that the actual problem is different to how it was framed to them. In fact, there could be situations where consensus is not possible or desirable; for instance, where the local community interests are clearly in opposition to the project that has been proposed (as in cases of community displacement to make room for infrastructure development) (Alfasi, 2021; Legacy, 2017). This is a consideration that can inform future research studies, particularly looking into counterfactual examples of projects, where meaningful participation is not possible to achieve due to stark differences in desired outcomes.

The second area for consideration is whether the costs of implementing broad-scale and complex participation processes justify their benefits. In a situation of scarce access to operational resources that is typical for public sector organisations, there is a question of whether broad participation can justify its opportunity costs. While the normative perspective acknowledges the importance of the engagement process, it does not always consider the costs and utility of various engagement processes or the cost of engagement compared to the financial and time costs of alternative initiatives, which must be forgone in exchange for the participation process.

In the case of Trondheim, the participatory urban regeneration programme has the aim to enable organisational learning and develop capabilities, in addition to enabling participation spaces (Davies & Brady, 2016; Winch & Leiringer, 2016). It is anticipated that this will enable participatory initiatives across other primary activity areas, such as health, education, and culture. Each of the activity areas should be engaged with their counterparts 'on the ground', including service users and community residents. In this context, participation is not necessarily a separate type of activity which informs the planning process and policy implementation, but a structure of relationships, networks and feedback loops in the implementing organisation, which allows

the multi-level and cross-unit implementation process to happen. This suggests, contrary to popular belief, that the participation process does not stand in opposition to the institutionalised planning processes, but that it should be seen as part of the planning structures and processes.

This leads to our contribution to theory with this study. We aim to critically engage with and extend the [Hofer and Kaufmann \(2023\)](#) model of participation. While it is a comprehensive framework to encompass the participatory element of the urban regeneration programme we studied, we also found it to be lacking in differentiating between the different types of actors and the dynamics and power differential with which they interact with each other. For example, the voice of a municipal actor is very different from that of an individual citizen, and relationships between actors and arenas are not flat but rather skewed: actors with strong influence will see more of their preferences reflected in how arenas are shaped, and in turn, arenas will accommodate these influential actors better. We propose to extend the [Hofer and Kaufmann \(2023\)](#) framework by conceptualising this power difference as a *filter* on the relations between the main categories: not all actors are equal, and their influence is selectively protruded into the arenas, both regarding their direct contributions and their preference for the shape of the arena. In a similar vein, the way arenas accommodate the establishment of aims is not symmetrical but imposes a filter on the aims that can be made to circulate in participation processes. [Figure 4.2](#) illustrates our contribution by superimposing a notional filter for interactions that occur across and between the dimensions of participation and actors. This filtering is bidirectional: some actors bring proposals and ideas more successfully into arenas than others, and arenas have different affording and constraining influences on different

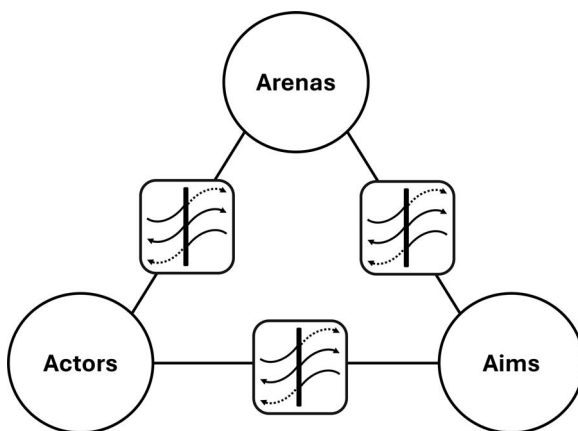


FIGURE 4.2 Extended participation triangle including power-mediated interactions.

Source: authors

actors. The same holds for the relations between aims and arenas and aims and actors, respectively.

Finally, we want to address the limitations and shortcomings of our contribution. The current study is conducted at an early phase of the urban regeneration programme implementation. As a result, the dimensions of actors, aims and arenas that we analysed are by and large in conception and are likely to change and evolve as programme implementation unfolds. Although we focus on the 'how' of the implementation of citizen participation (rather than the 'why' and the 'what' of problem identification and policy formulation), it remains to be seen whether the described participation framework will lead to a broader and more inclusive shared decision-making process. The main question on the long-term effectiveness of the engagement is around the tendency of urban regeneration projects to pave the way for gentrification, whereby existing residents are 'priced out' of the area to make way for middle-class residents and businesses (Hochstenbach & Musterd, 2018; Slater, 2011). While urban gentrification is an endemic problem, the question is whether it poses the same risks in urban developments in the Nordic region. Finally, it should be mentioned that the scope and complexity of the urban regeneration programme extend well beyond what has been possible to capture in our brief analysis for purposes of describing the citizen participation segment of the regeneration programme.

Implications for practice and policy

The main implications for practice and policy from our study can be summarised under two recommendations. First, a participation process may not be appropriate for every situation of urban regeneration intervention. Second, to be effective, the participation process should be consistently followed throughout the programme lifecycle.

A well-known saying holds that 'with a hammer in hand, all problems look like a nail'. Similarly, policy actors should consider how citizen participation supports their urban regeneration agendas. Broad participation is costly and complex and neither guarantees implementation success nor does it necessarily lead to more democratic and inclusive decision-making. Indeed, achieving consensus across the board may not always be within reach. Therefore, it is important to consider costs (including opportunity costs) of implementing broad participation. In those situations, policymakers and implementing bodies should consider whether broad participation is fit for purpose. Alternatively, simplified participation procedures can be made part of the intervention, while the freed resources can then be utilised to support local communities through other means, for example, by offering additional municipal services and grants to serve the regeneration agenda.

The second recommendation concerns the process of participation. If policy actors and local governments decide to engage with citizens and community actors, they should consider the complexity and extent of the participation process. This suggests considering and designing participatory opportunities across all stages of the implementation, including policy formulation, problem definition and selection of options to be implemented for interventions. This framing and formulation process is now usually a top-down process, with no direct opportunities for active participation for citizens and community actors other than through their engagement with the institutions of democratic governance such as the electoral system where they can influence policy agendas. To open up the planning and implementation process of regeneration initiatives and make them transparent, local governments should seek to democratise not only the solutions but also how problems are identified, defined and framed. To this end, it is vital to develop a close partnership with local community actors, where expectations are properly managed and a productive participation process is ensured.

The following questions can guide such processes.

- How do participants perceive the impact their involvement will have on the planning and implementation? A stronger sense of involvement and influence will provide a stronger motivation to participate.
- How familiar are the participation actors with the institutions and decision-making processes around policy implementation?
- Who is recruited into the engagement arenas? How do we select the most relevant actors while ensuring the voices of those who are not in the room are also heard and represented in the group?

Acknowledgements

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References

- Ahola, T., Vuorinen, L., & Miterov, M., et al. (2021). Public Participation in Urban Development Projects: A Systematic Cross-Disciplinary Literature Review. *Available at SSRN 4385563*.
- Alfasi, N. (2021). Why public participation isn't a tool for democratizing planning. A comment. *Planning Theory*, 20(2), 175–178.
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224.

- Bailey, N. (2010). Understanding community empowerment in urban regeneration and Planning in England: Putting policy and practice in context. *Planning Practice & Research*, 25(3), 317–332.
- Bailey, N. (2012). The role, organisation and contribution of community enterprise to urban regeneration policy in the UK. *Progress in Planning*, 77(1), 1–35.
- Chilvers, J., & Kearnes, M. (2016). *Remaking participation. Science, environment, and emerging publics*. Routledge.
- Ciaramella, A., & Dall’Orso, M. (2021). *Urban regeneration and real estate development: Turning real estate assets into engines for sustainable socio-economic progress*. Springer Nature.
- Couch, C., Sykes, O., & Börstinghaus, W. (2011). Thirty years of urban regeneration in Britain, Germany and France: The importance of context and path dependency. *Progress in Planning*, 75(1), 1–52.
- Crowley, K., & Head, B. W. (2017). The enduring challenge of ‘wicked problems’: Revisiting Rittel and Webber. *Policy Sciences*, 50(4), 539–547.
- Davies, A., & Brady, T. (2016). Explicating the dynamics of project capabilities. *International Journal of Project Management*, 34(2), 314–327.
- Di Maddaloni, F., & Davis, K. (2017). The influence of local community stakeholders in megaprojects: Rethinking their inclusiveness to improve project performance. *International Journal of Project Management*, 35(8), 1537–1556.
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65–91.
- Dorst, K. (2011). The core of ‘design thinking’ and its application. *Design Studies*, 32(6), 521–532.
- Eskerod, P., Huemann, M., & Savage, G. (2015). Project stakeholder management—Past and present. *Project Management Journal*, 46(6), 6–14.
- Farrell, R., & Hooker, C. (2013). Design, science and wicked problems. *Design Studies*, 34(6), 681–705.
- Habermas, J. (2022). Reflections and hypotheses on a further structural transformation of the political public sphere. *Theory, Culture & Society*, 39(4), 145–171.
- Hochstenbach, C., & Musterd, S. (2018). Gentrification and the suburbanization of poverty: Changing urban geographies through boom and bust periods. *Urban Geography*, 39(1), 26–53.
- Hofer, K., & Kaufmann, D. (2023). Actors, arenas and aims: A conceptual framework for public participation. *Planning Theory*, 22(4), 357–379.
- Innes, J. E & Booher, D. E. (2016). Collaborative rationality as a strategy for working with wicked problems. *Landscape and Urban Planning*, 154, 8–10.
- Jacobsson, M., Lundin, R. A & Söderholm, A. (2015). Researching projects and theorizing families of temporary organizations. *Project Management Journal*, 46(5), 9–18.
- Kjølle, K. H., Loe, M., & Semundseth, I., et al. (2022). En sosiokulturell stedsanalyse av Lademoen. In: Trondheim Kommune (ed).
- Krzywoszynska, A., Matt, W., & Buckley, A., et al. (2018). Opening up the participation laboratory. *Science, Technology, & Human Values*. DOI: [10.1177/0162243917752865](https://doi.org/10.1177/0162243917752865)
- Lawless, P., & Pearson, S. (2012). Outcomes from community engagement in urban regeneration: Evidence from England’s new deal for communities programme. *Planning Theory & Practice*, 13(4), 509–527.
- Legacy, C. (2017). Is there a crisis of participatory planning? *Planning Theory*, 16(4), 425–442.
- Leino, H., & Laine, M. (2012). Do matters of concern matter? Bringing issues back to participation. *Planning Theory*, 11(1), 89–103.

- Loe, M., Semundseth, I., & Kjølle, K. H., et al. (2022). En sosiokulturell stedsanalyse av Tempe-Sorgenfri. In Trondheim Kommune (ed.). <https://hdl.handle.net/11250/3049076>
- Lundin, R. A., Arvidsson, N., & Brady, T., et al. (2015). *Managing and working in project society*. Cambridge university press.
- Marres, N. (2007). The issues deserve more credit: Pragmatist contributions to the study of public involvement in controversy. *Social Studies of Science*, 37(5), 759–780.
- Matinheikki, J., Arto, K., Peltokorpi, A., Rajala, R. (2016). Managing inter-organizational networks for value creation in the front-end of projects. *International Journal of Project Management*, 34(7), 1226–1241.
- Monno, V., & Khakee, A. (2012). Tokenism or political activism? Some reflections on participatory planning. *International Planning Studies*, 17(1), 85–101.
- Pandey, P., & Sharma, A. (2021). Knowledge politics, vulnerability and recognition-based justice: Public participation in renewable energy transitions in India. *Energy Research & Social Science*, 71, 101824.
- Phillips, N., & Oswick, C. (2012). Organizational discourse: Domains, debates, and directions. *Academy of Management Annals*, 6(1), 435–481.
- Redfern, P. A. (2003). What makes gentrification ‘gentrification’? *Urban Studies*, 40(12), 2351–2366.
- Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press.
- Shaw, K. (2008). Gentrification: What it is, why it is, and what can be done about it. *Geography Compass*, 2(5), 1697–1728.
- Slater, T. (2011). Gentrification of the city. In *The New Blackwell companion to the city* (pp. 571–585). <https://doi.org/10.1002/9781444395105.ch50>
- Toukola, S., Ahola, T., Ståhle, M., Hällström, A. A. (2023). The co-creation of value by public and private actors in the front end of urban development projects. *International Journal of Project Management*, 41(8), 102542.
- Trondheim Kommune (2024) Årsrapport 2023: Områdesatsingene i Trondheim: Lademoen og Tempe-Sorgenfri.
- Voß, J.-P. (2014). Performative policy studies: Realizing “transition management”. *Innovation: The European Journal of Social Science Research*, 27(4), 317–343.
- Vuorinen, L., & Martinsuo, M. (2019). Value-oriented stakeholder influence on infrastructure projects. *International Journal of Project Management*, 37(5), 750–766.
- Williams, T. M., Samset, K., & Volden, G. H. (2022). *The front-end of large public projects: Paradoxes and ways ahead*. Taylor & Francis.
- Winch, G., & Leiringer, R. (2016). Owner project capabilities for infrastructure development: A review and development of the “strong owner” concept. *International Journal of Project Management*, 34(2), 271–281.
- Yu, J.-H., & Kwon, H.-R. (2011). Critical success factors for urban regeneration projects in Korea. *International Journal of Project Management*, 29(7), 889–899.
- Zakhour, S. (2020). The democratic legitimacy of public participation in planning: Contrasting optimistic, critical, and agnostic understandings. *Planning Theory*, 19(4), 349–370.
- Zerjav, V., McArthur, J., & Edkins, A. (2021). The multiplicity of value in the front-end of projects: The case of London transportation infrastructure. *International Journal of Project Management*, 39(5), 507–519.

5

USER ENGAGEMENT IN PUBLIC URBAN DEVELOPMENT PROJECTS

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Introduction

The development of urban areas requires active collaboration between project stakeholders throughout the project lifecycle, from the front end to the operations phases (Artto et al., 2016). Municipalities must constantly develop their infrastructure and services to meet the needs and expectations of various citizen groups (e.g., children, workers and pensioners). Consequently, municipalities are considering ways to engage citizens in urban development projects. Citizen engagement plays a crucial role in urban development projects, as it promotes the consideration of communities' needs and preferences, potentially leading to more effective and well-received outcomes. Engaging citizens in urban development projects empowers them to have a say in their urban environment, fostering a sense of ownership and community pride (Kujala et al., 2022). Successful engagement benefits not only citizens but also cities and decision makers, as it may lead to better informed decisions, increased project acceptance and improved project outcomes (Purvis et al., 2015).

In this chapter, we focus on citizens as users of urban development projects. While citizens can assume various roles in such projects, it is the users who especially benefit from the final outcome of the project, such as a public building. In this chapter, we define user engagement as 'organizational practices that are used to involve users in urban development project's organizational activities' (Greenwood, 2007, pp. 317–318). Even though previous research on stakeholder engagement in construction projects has emphasised collaboration between public and private actors (e.g., Cui et al., 2018; Hedborg & Karrbom Gustavsson, 2020) at the front end of projects (Candel et al., 2021;

Toukola et al., 2023), increasing attention has been placed on understanding how users' needs can be better acknowledged in different phases of these projects (Torvinen & Ulkuniemi, 2016). The goal of user engagement is often different in different phases of the project lifecycle. It can be assumed that the practices of user engagement would vary as well (Lehtinen & Aaltonen, 2020). Moreover, it is not evident what kinds of practices should be adopted to engage various user groups. Thus, there is a need to better understand how public project organisations (e.g., municipalities) engage project users in publicly procured projects throughout the project lifecycle.

To study user engagement in publicly procured construction projects, we conducted a multiple case study in two Finnish municipalities. This chapter answers the following research question: *How do municipalities engage users in different phases of the construction project lifecycle?* We studied two urban development projects in different phases of the project lifecycle: one under early project planning and the other under the construction finalisation and early use phases. The two cases complement each other, contributing to a comprehensive understanding of user engagement across various project lifecycle phases. Our primary data comprise semi-structured interviews (15 in total) with representatives of both municipalities and project users.

The findings of this chapter reveal the practices of user engagement, how various user needs are communicated and how users' needs and expectations are eventually considered in the project work. The findings show how the intensity of user engagement is often strongest in the project front end and the finalisation phases and how, around project commissioning, actors continue to collaborate to solve final issues in the project. This study contributes to the discussion on user engagement in publicly procured projects by demonstrating the importance of user engagement in committing them to urban development projects and how decision makers should employ engagement practices when developing urban spaces.

The chapter begins with a literature review on user engagement in urban development projects. Next, research methodology and the two case studies are presented in detail, followed by the results section. Finally, the implications of the research and practice and policy recommendations are discussed.

Literature review

Stakeholder engagement in urban development projects

Urban development projects, such as the construction and maintenance of infrastructure, housing or public buildings, are important for municipalities, as they transform the urban landscape and create value for citizens as end

users of these different premises. These kinds of projects often have a long life-cycle, spanning from the initial planning and design of the project to finally implementing the project and using the developed products. It might take several years to implement such projects, and the final product should last for decades, thus bringing sustainable value to societies (Di Maddaloni & Sabini, 2022; Vuorinen & Martinsuo, 2019).

Projects often involve various stakeholders beyond the focal organisations implementing the projects, such as citizens, media and non-profit organisations (Aaltonen & Kujala, 2010). Stakeholders can be defined as individuals or groups that can impact, or be impacted by, organisations' objectives (or, in this study, urban development projects) (Freeman et al., 2007). Recent research has studied how to engage these various stakeholders in projects, meaning 'organizational practices that are used to involve stakeholders in urban development project's organizational activities' (Greenwood, 2007, pp. 317–318). This research on stakeholder engagement highlights a managing *for* stakeholder perspective, suggesting that organisations should generate value not only for internal project stakeholders but also for external ones who, despite lacking official or contractual ties to the project organisation, may still influence or be influenced by the project (Freeman et al., 2007; Lehtinen & Aaltonen, 2020).

Even though the importance of engaging external stakeholders in larger construction projects is acknowledged, it remains challenging to identify suitable and successful practices for engaging stakeholders throughout the lifecycles of projects (Derakhshan et al., 2019; Kujala et al., 2022). Especially in urban development projects, a project organisation's (e.g., a municipality) primary purpose is to create value for all stakeholders, extending beyond stockholders, suppliers and customers, and organisations should pay careful attention to their relationships with stakeholders (Eslerod et al., 2015). In the remainder of this chapter, we focus on a specific aspect of stakeholder engagement: citizens as users of urban development projects.

Practices to engage users in various lifecycle phases

Engaging users in urban development projects is important because they are the primary stakeholders affected once the projects are completed. The importance of local users and communities has been addressed increasingly in studies related to decision-making processes in projects (Derakhshan et al., 2019; Di Maddaloni & Sabini, 2022), addressing the social aspects of sustainable development. Typical ways to engage these kinds of stakeholders in projects include methods, such as interviews, forums, workshops and focus group discussions, as well as various digital tools, such as virtual reality, social media, gaming or building information modelling systems (Toukola &

Ahola, 2022). As the goals of user engagement and the possibilities to affect project plans or outcomes vary throughout the project lifecycle, so does user engagement take different forms.

The project front end is an important phase of the project lifecycle because there the possibilities to affect project plans and outcomes are oftentimes the highest (Zerjav et al., 2021). Especially in public projects, the users can be engaged, for example, in the zoning process of new living areas, as they often involve an opportunity for users to state their opinion on the planning. Moreover, some municipalities have used participatory budgeting processes (Sintomer et al., 2012), where users can directly decide which projects are implemented in their neighbourhoods. Many of the studies in the project front-end phase, however, concentrate on the collaboration between public and private sector actors (i.e., internal stakeholders) (e.g., Candel et al., 2021; Toukola et al., 2023) and how projects should be managed for the best outcome. Municipalities represent users' voices in these settings; thus, there is a significant risk of missing users' opinions in project plans if they are not engaged at the project front end.

The project implementation phase concentrates on implementing the project, based on the decisions made at the project front end. The focus here is mostly on cost-efficient management of the project in terms of time, budget and scope. For example, previous studies have focused on the coordination mechanism among various stakeholders (such as contractors, suppliers, developers and consultants) (e.g., Hedborg & Rosander, 2024), and Hietajärvi et al. (2017) concluded that integration needs between stakeholders often decrease when the project proceeds to implementation. Implementing organisations are, however, responsible for communicating with users, especially in the case of public infrastructure projects, to build trust and legitimacy (Di Maddaloni & Sabini, 2022). The implementation phase places high emphasis on project plans, and there is often little room for users to affect the project at this stage, which might explain the scarcity of such studies.

Finally, the project proceeds to the finalisation and use phases after the project has been handed over to the customer. Here, the warranty period starts, and the contractor is often responsible for the project outcome for a number of years to come. The users' voices can be argued to amplify, as when the use of the building starts, some errors can often be found. Previous studies on project management in this phase have concentrated on project learning-related aspects, that is, what stakeholders learnt from the project and what they could have done better in future projects (Hartmann & Dorée, 2015). However, users' viewpoints are often neglected, and more studies should concentrate on addressing the longer impacts of projects and whether the project creates long-term sustainable value for users.

Research method

Research design

Due to the explorative nature of this study, a multiple case study research design was chosen. This research design enables the formation of a deep understanding through the collection of in-depth data from several informants (Yin, 2014). The cases of this study are two public construction projects, and the unit of analysis is the user engagement practices in these projects. The case study design resembles a common process approach (Eisenhardt, 2021) in which the same focal phenomenon is studied purposefully in different settings. In particular, the two cases focus on different phases of the project lifecycle, enabling us to study the practices of user engagement in two different settings. This way, the two cases complement each other, as visualised in Figure 5.1. We anticipate that examining user engagement during both the front-end phase (Zerjav et al., 2021) and the finalisation phase is valuable, as project outcomes are often most affected during these stages.

The goal of *SchoolProject* is the renovation of a primary school in a relatively remote suburb of a middle-sized city. The school facilities have been built in three phases: in the late 1960s, the late 1980s and the early 2000s. In addition to the primary school, several other public services, such as a local library and youth services, are provided in the same facilities. Outside school hours, the facilities are also used by different user groups, clubs etc. Consequently, the renovation project is of interest to many different user groups. We studied the early planning phase of *SchoolProject*, in which user groups' needs and expectations for the project were identified by the city.

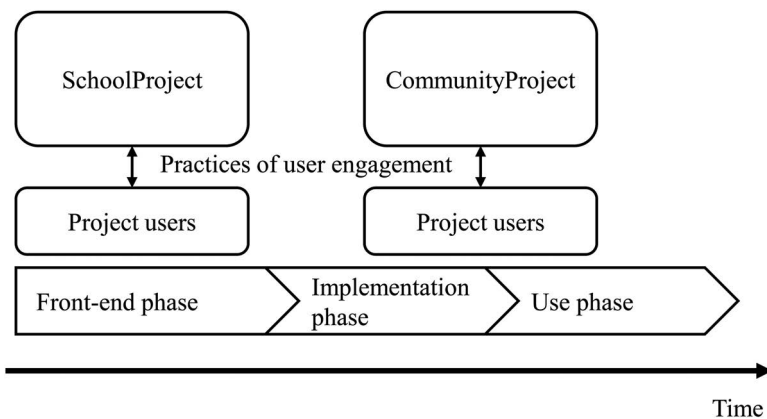


FIGURE 5.1 Case projects and the lifecycle phase they address

Source: Authors.

CommunityProject concerns the construction of a new community centre building in a Finnish municipality with approximately 40,000 inhabitants. This is one of the biggest projects the municipality has ever implemented, being also innovative as it is built out of wood. The building is designed for high school use; however, the adult education centre, music institute and some other smaller groups operate on the same premises. Thus, similarly to *SchoolProject*, the premises are shared among various user groups. The project has been completed, and the new building has been in use since autumn 2023. We studied the finalisation and use phases of *CommunityProject*, to identify how different users' interests were considered in the completed building.

Data collection and analysis

Data were collected in spring 2023 (*SchoolProject*) and autumn 2023 (*CommunityProject*) through semi-structured interviews. Altogether, 15 interviews were conducted (Table 5.1). The interviewees covered both user and client perspectives on the two case projects. In addition, in the *SchoolProject* case, we interviewed the consultancy company involved in the user engagement process, and in the *CommunityProject* case, we interviewed the contractor representatives. The list of interviewees was considered sufficient for this study because it includes the majority of key actors representing the buyer and user

TABLE 5.1 Background Information on Interviewees and Interviews

<i>Interviewee</i>	<i>Stakeholder group</i>	<i>Duration (min)</i>
<i>SchoolProject</i>		
Coordinator	Municipality	60
Youth services representative	User	49
Consultant	External consultant	52
Library representative	User	32
School principal	User	60
Youth services representative	User	48
<i>CommunityProject</i>		
Head of project management	Contractor	54
Principal, High school	User	59
Principal, Adult education centre	User	84
Project manager	Contractor	69
Production engineer	Contractor	88
Head of facility services	Municipality representative/user	38
Responsible supervisor	Contractor	64
Project manager	Municipality representative/user	75
Head of educational administration	Municipality representative/user	50

perspectives to the projects. In terms of the size of the projects, the number of interviews was considered sufficient to make meaningful conclusions in terms of the focus of this study. The interviews were recorded and transcribed. Moreover, some publicly available data were utilised to verify key facts, and in the SchoolProject case, we also obtained the results of the engagement process conducted earlier for the municipality inhabitants. Preliminary results were discussed with municipalities' representatives to enhance validity and reliability.

The interview outline covered the following topics: the interviewees' background, background of the project, current situation in the project and project timeline; user engagement practices utilised throughout the project lifecycle, interviewees' experiences of user engagement and perceptions of the overall success of the project so far. The interview structure was slightly altered depending on the interviewee and the project. For example, in SchoolProject, we focused on user engagement practices in the front-end phase and expectations expressed by the users. In CommunityProject, we focused on engagement in the finalisation and use phases; thus, we could also discuss how the users' needs were eventually considered in the final building.

Finally, the data analysis proceeded by exploring the data freely to provide a holistic understanding of the two cases. We then specifically coded the data inductively in terms of the user engagement practices utilised, the timing of user engagement and interviewees' perceptions of such practices. Illustrative quotes are employed throughout the chapter to create connections between the conclusions and the data. The quotations have been altered slightly to improve meaning and clarity. To protect the interviewees' privacy, the quotes are anonymised.

Results

User engagement at the project front end: SchoolProject

The user engagement process of SchoolProject began in late 2022. The organisation responsible for developing the project was the property management services of the city. User engagement was led by the property services as well. However, to conduct user engagement in a comprehensive manner, the city collaborated with a consultancy company specialising in user engagement.

User engagement took place in various ways in the front-end phase of SchoolProject. Methods for identifying user expectations included user interviews, a workshop, a survey and an information event. By pursuing user engagement in different ways, the city, with significant help from the consultancy company, could reach a range of user groups in the front-end phase. To promote participation in the user engagement process, the process was promoted on local media, on social media and through 'traditional offline ways'.

The user interviews were targeted at different user groups in the school facilities. Examples of interviewed user groups included personnel of the school, library and youth services, and representatives of local clubs and associations. Altogether, more than 20 user interviews were conducted by the consultancy company. Due to the relatively low number of interviews and the targeted nature of interviews as a form of user engagement, the interviews enabled a deep focus on the needs and expectations of specific user groups. As one interviewee explained, *'The user interviews felt more in time [than the other forms of user engagement]. You really had the opportunity to describe and explain [e.g., your wishes to the interviewers]'*.

In contrast to the individual characteristics of the user interviews, the user workshop enabled the discussion of user expectations in a collaborative manner. The main goal of the workshop was to ideate and discuss users' wishes for the renovated school facilities, especially outside school hours. The workshop featured both individual and group work. As a representative of the consultancy company explained, *'First, the participants of the workshop ideated individually. Then, the individual ideas were discussed and prioritised in small groups. – And after the workshop, we took the written documentation, transferred it to the digital system and analysed the findings'*. The workshop attracted more than 20 participants, most of whom were local residents, employees or users of the school facilities. The workshop findings revealed three main areas of users' expectations: cosiness of the school yard, flexible use of the school facilities (especially outside school hours) and the need for better facilities for the local youth.

The third form of user engagement was a survey. Compared to the user interviews and the workshop, this form of user engagement enabled a significantly higher number of local people to bring up their viewpoints to the user engagement process. Round 150 people responded to the survey. Illustrative groups of respondents included users of the library, residents of nearby neighbourhoods, parents of school pupils and users of the sports hall. The wide range of survey respondents enabled the identification of diverse expectations for the renovation project. In addition, as explained by a representative of the consultancy company, the survey enabled the *'validation of the findings from the user interviews and the user workshop'*.

The fourth and final form of user engagement was a user event. The purpose of this event was to communicate the main results of the user engagement process and the next steps of the project preparations to interested citizens. In terms of user engagement, this event was mainly about unidirectionally informing the citizens and lacked depth in the discussions.

The four forms of user engagement discussed above – user interviews, workshop, survey and user event – illustrate the versatile forms of user engagement conducted at the front end of SchoolProject. These four forms were mostly led by the consultancy company. Partly simultaneously with this early

phase of user engagement, and especially immediately following it, early project planning began with the establishment of a planning group. This group comprised representatives of different city functions, and its first task was to create a preliminary project plan for authorisation by the city council. Consequently, the early work of the planning group also included elements of user engagement – especially consideration of user viewpoints. On one hand, the planning group had to consider the needs and expectations of the official organisational user groups of the project (e.g., school, library and youth services). On the other hand, the viewpoints raised by citizens and other user groups had to be considered as well. However, in this early phase of project planning, only a preliminary project plan was created, and the needs of the organisational user groups were prioritised.

In addition to describing the different forms of user engagement, the interviewees described their perceptions of the user engagement process. In general, the versatile forms of user engagement were appreciated by many interviewees. The interviewees described an open, active and positive atmosphere in the user engagement events. Due to the versatile forms of user engagement and the role of the consultancy company, a wide range of project users were reached, and data on their expectations were collected.

However, some interviewees raised two slightly more concerned viewpoints. First, although getting several user expectations was praised numerous times, the novelty of these ideas was considered quite low. In addition, several interviewees brought up the risks of user disappointment if only quite a few user expectations could be fulfilled in the renovation project: *‘There is always the risk that if people are actively engaged and listened to, but then nothing will happen in the end’*. However, one of the more critical interviewees pondered in the following way:

If the user engagement process was conducted to figure out novel ideas, it was quite useless – but if it was conducted to make the people feel that they have been listened to and they are now happy, then it was definitely worth the money and the effort.

Finally, the early work of the planning group raised some concerns about different organisational user groups. In particular, a few interviewees raised the risk that the requirements of the most powerful organisational user group, the school, would override all other organisational user groups. As one interviewee described, *‘The agenda of one meeting included nothing but issues of the school – [person X] was present, she did not say a word – I was present, I was not asked a single question’*.

Engaging in the finalisation and use phases: CommunityProject

The construction of CommunityProject started in 2021, but design planning of the building had begun already in 2014. In these early phases, the users

were engaged in various workshops, and finally, in 2017, the users could participate in voting in the architectural competition, where the jury and the users reached the same conclusion regarding the winner concept. Thus, the foundation for the engagement had already been built, and all project stakeholders agreed to engage users whenever appropriate.

In the construction phase between 2021 and 2023, the main engagement activities occurred from late 2022 to project handover in 2023. At the beginning of the project, a project management group was established that involved all main stakeholders of the project. In this management group, all possible problems and changes were discussed together, which actively reduced the workload and decision-making needs at the construction site. Altogether, the collaboration in the triad of the contractor, the municipality and users was considered clear and developed further as the project moved ahead.

When the finalisation phase approached, the intensity of user engagement also grew. Different types of meetings were organised between the stakeholders, and the role of the high school principal was especially emphasised. The principal actively collected users' needs and requirements and communicated these to the project management group. The role of such individuals was to collate a list of requirements from the final users and to filter and prioritise the noticed issues. This way, the contractor could concentrate on the main tasks and evaluate what could be left for further consideration and fixed when the warranty period started. It was also important to separate the tasks based on what needed to be corrected by the contractor, which errors were design faults, and which issues were more like wishes for the future, typically not included in the project plan.

As more straightforward examples of user engagement, several site visits were organised for the users during the finalisation phase. As there were various user groups (e.g., students and teachers of the high school, the adult education centre, the arts school and the music institute and employee of the cultural services of the municipality), it was important to consider all of them individually. For example, the adult education centre and music institute use special equipment in teaching (e.g., musical instruments or equipment for pottery classes). Due to the wide range of different user groups, it was not immediately clear how the spaces would function cohesively across all institutes. This issue persisted as a significant concern for users, necessitating the adoption of new methods for collaboration and planning. The users' representatives held joint meetings to discuss all requirements, which were then communicated to the contractor and municipality representatives. By visiting the almost completed building, the users could notify potential problem areas, some of which the contractor was still able to solve before the handover.

The municipality project manager and the high school principal coordinated the user engagement by deciding whom of the users were invited to

which training sessions. From the municipality side, a photographer was also involved in video recording of all the sessions (Contractor project manager).

One of the larger entities that was left to the finalisation phase was the choice of furniture. Here, the users chose a specific group among themselves that made the choice from the furniture options. The users could not choose individual furniture pieces (such as chairs or tables) but had to make a choice from the set of various pieces of furniture. In some cases, this was problematic as the final choice was eventually a compromise of various needs (e.g., what kind of chairs can be used by both the children and elderly people?). However, this was still considered a good practice, as the users felt like they were listened to.

When the project proceeded to the handover in summer 2023, the intensity of the project work grew. The contractor was in a hurry to finalise all construction work and, at the same time, furnishing needed to be completed. The overlapping schedules were considered challenging. Teachers played a crucial role in furnishing and moving to the new premises, and they managed to complete the transfer before the summer holiday season. At this stage, caretakers were a crucial user group, as they were responsible for maintaining the building's technical functionality. The importance of the early engagement of this user group was emphasised several times for the successful use of the building. The contractor engaged the caretakers when training them in the use of technology, and these training sessions were also recorded for others to watch later.

For round one and a half months, the users, furniture suppliers and several teachers in addition to high school principal were visiting the work site daily. We needed actively to coordinate our activities during that time (Contractor production manager).

The contractor managed to hand over the building in summer 2023, with all major issues corrected. By the time of finishing the interviews, there were still some defects in the building (e.g., visibility issues in the main auditorium) and some concerns were raised regarding the sufficiency of the parking spaces. Some issues (e.g., an additional loading ramp) were left for the municipality to decide later, but the building was fully functional when the use phase started in autumn. Based on early user feedback, for example, some additional coffee stations were added to some floors. Moreover, the signposts inside and outside the building were not completely ready in the beginning. However, the users seemed to be pleased and proud with their new community centre and how their voices were heard in various phases. User engagement was considered helpful from both the contractor and municipality sides, as the project would affect the lives of the users for many decades to come.

When you go there [community centre] and encounter a seven-year-old pupil going to violin lesson, an elderly person going to pottery class, a high

school student or a politician, it feels special and something that is shared by all of us (Municipality worker).

Discussion and conclusions

Conclusions and implications for research

In this explorative multiple case study, we examined user engagement in public urban development projects. In particular, we aimed to answer the following research question: *How do municipalities engage users in different phases of construction project lifecycles?* Our results contribute to the research stream of stakeholder engagement in projects (Eskerod et al., 2015; Kujala et al., 2022), especially from the perspective of user engagement throughout the project lifecycle.

The results reveal various ways of user engagement in different phases of the project lifecycle, highlighting a ‘not one size fits all’ viewpoint to stakeholder engagement. In SchoolProject, the focus was on the project front end, where a survey, user interviews, a workshop and a presentation session were utilised to engage users. Focus was on giving a voice to different user groups and on identifying users’ expectations for the upcoming renovation project. In CommunityProject, the focus was on the finalisation phase of the project and the practices of user engagement consisted of various meetings, site visits and feedback collection practices. The results highlighted ways to ensure that the outcome of the project satisfied the needs and requirements of the users. Although most of the forms of user engagement identified in this research have been discussed in earlier studies (e.g., Hedborg & Rosander, 2024; Lehtinen & Aaltonen, 2020; Sintomer et al., 2012; Toukola & Ahola, 2022), our findings paint a more detailed picture of user engagement in different phases of a project lifecycle. In addition, our study contributes to the group of earlier studies discussing the heterogeneity of users and the delivery of value to them (Di Maddaloni & Sabini, 2022; Zerjav et al., 2021).

Our results highlight variation in the intensity and nature of user engagement, revealing how user engagement evolves throughout the project lifecycle. At the project front end, more comprehensive user engagement can take place, as decision makers aim to grasp several viewpoints. In the implementation phase, contractors and project owners mostly focus on cost-efficient management of the project according to project plans, which leaves less room for user engagement. However, there seem to be significant opportunities to engage users when reaching the finalisation phase and even the early use phase. The importance of user feedback has been discussed in earlier research (Eskerod et al., 2015; Zerjav et al., 2021), but this study demonstrates how users can take various other roles in the engagement process. This study continues the nascent discussion on user engagement in project studies and

contributes to the lifecycle view on projects (Vuorinen & Martinsuo, 2019). The study demonstrates that engaging various stakeholders is not only important in the project front-end phase, but opportunities for value creation also occur in the later phases of a project lifecycle.

Implications for practice and policy

For project management practitioners, the results encourage user engagement to be included in project plans. The plans for user engagement should consider different user groups and the different phases of a project lifecycle. Our results indicate how, especially early in the project, forms of user engagement can be more versatile so that the voices of the various user groups are amplified and several viewpoints are considered. When a project proceeds to the implementation phase, especially towards the finalisation phase, more formal coordination of user engagement, such as meetings and feedback collection systems, might be required to efficiently gather all concerns of the final users and prioritise the tasks. Moreover, this might mean identifying key people in all stakeholder groups (such as the principal in the CommunityProject case) whose task is to collect the feedback and communicate it to everyone else in the project organisation.

This study suggests the vision and common goal of a project as an important form of user engagement. The vision commits stakeholders to the project, and it may be easier to engage users if they feel that the project is ‘built for them’. For the project organisation, this implies that communicating with the users all the way from the early project front end builds commitment to the project and potentially increases its legitimacy in the eyes of the user groups. Even though user engagement might not bring any additional insights to project plans, as is, the sole engagement has a value itself.

Finally, for policy, public decision-making and urban planning, this study highlights the active collaboration among various stakeholders, and that resources should be reserved for the user engagement process. When choosing contractors for upcoming urban development projects, not all might be familiar with user engagement. The experience of user engagement in public projects could be included as one decision-making criterion. For urban development on a larger scale, users’ voices should be considered better when developing the urban space to make more approachable spaces for everyone in the future.

References

- Aaltonen, K., & Kujala, J. (2010). A project lifecycle perspective on stakeholder influence strategies in global projects. *Scandinavian Journal of Management*, 26(4), 381–397.

- Artto, K., Ahola, T., & Vartiainen, V. (2016). From the front end of projects to the back end of operations: Managing projects for value creation throughout the system life-cycle. *International Journal of Project Management*, 34(2), 258–270.
- Candel, M., Karrbom Gustavsson, T., & Eriksson, P. E. (2021). Front-end value co-creation in housing development projects. *Construction Management and Economics*, 39(3), 245–260.
- Cui, C., Liu, Y., Hope, A., & Wang, J. (2018). Review of studies on the public–private partnerships (PPP) for infrastructure projects. *International Journal of Project Management*, 36(5), 773–794.
- Derakhshan, R., Mancini, M., & Turner, J. R. (2019). Community's evaluation of organizational legitimacy: Formation and reconsideration. *International Journal of Project Management*, 37(1), 73–86.
- Di Maddaloni, F., & Sabini, L. (2022). Very important, yet very neglected: Where do local communities stand when examining social sustainability in major construction projects? *International Journal of Project Management*, 40(7), 778–797.
- Eisenhardt, K. M. (2021). What is the Eisenhardt method, really? *Strategic Organization*, 19(1), 147–160.
- Eskerod, P., Huemann, M., & Ringhofer, C. (2015). Stakeholder inclusiveness: Enriching project management with general stakeholder theory. *Project Management Journal*, 46(6), 42–53.
- Freeman, R. E., Harrison, J. S., & Wicks, A. C. (2007). *Managing for stakeholders: Survival, reputation, and success*. Yale University Press.
- Greenwood, M. (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics*, 74(4), 315–327.
- Hartmann, A., & Dorée, A. (2015). Learning between projects: More than sending messages in bottles. *International Journal of Project Management*, 33(2), 341–351.
- Hedborg, S., & Karrbom Gustavsson, T. (2020). Developing a neighbourhood: Exploring construction projects from a project ecology perspective. *Construction Management and Economics*, 38(10), 964–976.
- Hedborg, S., & Rosander, L. (2024). Self-organizing in urban development: Developers coordinating between construction projects. *Construction Management and Economics*, 42(2), 116–130.
- Hietajärvi, A. M., Aaltonen, K., & Haapasalo, H. (2017). Managing integration in infrastructure alliance projects: Dynamics of integration mechanisms. *International Journal of Managing Projects in Business*, 10(1), 5–31.
- Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A., & Laude, D. (2022). Stakeholder engagement: Past, present, and future. *Business & Society*, 61(5), 1136–1196.
- Lehtinen, J., & Aaltonen, K. (2020). Organizing external stakeholder engagement in inter-organizational projects: Opening the black box. *International Journal of Project Management*, 38(2), 85–98.
- Purvis, R. L., Zagenczyk, T. J., & McCray, G. E. (2015). What's in it for me? Using expectancy theory and climate to explain stakeholder participation, its direction and intensity. *International Journal of Project Management*, 33(1), 3–14.
- Sintomer, Y., Herzberg, C., Röcke, A., & Allegretti, G. (2012). Transnational models of citizen participation: The case of participatory budgeting. *Journal of Public Deliberation*, 8(2), 9.
- Torvinen, H., & Ulkuniemi, P. (2016). End-user engagement within innovative public procurement practices: A case study on public–private partnership procurement. *Industrial Marketing Management*, 58, 58–68.
- Toukola, S., & Ahola, T. (2022). Digital tools for stakeholder participation in urban development projects. *Project Leadership and Society*, 3, 100053.

- Toukola, S., Ahola, T., Ståhle, M., & af Hällström, A. (2023). The co-creation of value by public and private actors in the front end of urban development projects. *International Journal of Project Management*, 41(8), 1025-42.
- Vuorinen, L., & Martinsuo, M. (2019). Value-oriented stakeholder influence on infrastructure projects. *International Journal of Project Management*, 37(5), 750–766.
- Yin, R. K. (2014). *Case study research – Design and methods* (5th ed.). SAGE Publications.
- Zerjav, V., McArthur, J., & Edkins, A. (2021). The multiplicity of value in the front-end of projects: The case of London transportation infrastructure. *International Journal of Project Management*, 39(5), 507–519.

PART II

Mechanisms for citizen engagement



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6

EFFECTIVE DIGITAL CITIZEN PARTICIPATION PROCESSES IN URBAN DEVELOPMENT

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Introduction

Urban development, supported by information and communication technology (ICT), is crucial for modern societal progress. A vital component of this vision for smarter cities is data-driven decision-making (Bouzguenda et al., 2019). Cities are increasingly adopting the citizen-centric approach to urbanisation (Batty et al., 2012), where digital technology facilitates citizen participation in urban development projects (UDPs). These processes are designed to reflect the aspirations and values of the people rather than merely focusing on infrastructure (Batty et al., 2012). An advantage of capitalising on this approach of citizen-centric urban development is the potential to meet the needs of the citizens and communities more effectively (Albino et al., 2015). Citizen input plays a significant role in shaping urban development (Senior et al., 2021, 2023) and it is the responsibility of cities and UDPs to facilitate the citizen participatory processes to be planned with care (Berntzen & Johannessen, 2016).

Citizen participatory processes enable interactions between citizens, decision-makers, and city administration. Traditionally, these processes were limited to mechanisms (Rowe & Frewer, 2004) which required the physical presence of citizens in venues such as town hall meetings, seminars, and workshops. In recent years, ICT use in cities has grown significantly, and as such, digital technologies and interactive tools are used to facilitate participatory processes in cities (Bednarska-Olejniczak et al., 2019; Temeljotov-Salaj et al., 2020). Electronic-based participatory processes are generally defined as e-participation, encompassing citizens' active and passive involvement (Sæbø et al., 2008). In general terms, digital citizen participation (DCP),

employed by smart cities, allows individuals to participate through flexible approaches and to become co-creators in the entire process of developing UDPs with the active involvement of citizens (Cortés-Cediel et al., 2021; Senior et al., 2021). Digital meetings, digital feedback, digital surveys, and 3D visualisation with questionnaires are commonly used for DCP (Criado et al., 2013; Toukola & Ahola, 2022). Like other digital tools, DCP was even more pronounced during the pandemic due to COVID-19 restrictions on physical gatherings. Cities and UDPs were forced to adopt digital mechanisms of participation. As such, different digital tools were designed to get feedback on the various processes through participation and allow citizens to facilitate the process (Temeljotov-Salaj et al., 2020).

Engaging a wider audience through DCP introduces a diverse array of citizens, which requires tailored procedures to meet their unique needs and preferences (Bryson et al., 2013). Moreover, participatory processes with DCP that neglect certain critical factors exacerbate issues such as the digital divide and disempowerment arising from skill incompetence, particularly among individuals with limited digital competencies (Hill et al., 2015; Schmidt, 2023). Although DCP provides new opportunities for participation by reaching a wider audience and enabling broader participation (Macintosh, 2004), risks arise when participation fails to fulfil the core purpose of the participatory process (Nabatchi, 2012). These can lead to the use of DCP only as a means to demonstrate accountability (Kitchin, 2014), comply with legal mandates (Ringholm et al., 2018), or serve political agendas. Hence, it is crucial to understand different elements of DCP and mitigate the risk of DCP being considered ineffective despite several advantages and possibilities (Macintosh, 2008). Addressing these challenges forms the basis of this research, which is guided by two key questions:

RQ 1: *What does it mean for a participatory process to be effective?*

RQ 2: *How can digital citizen participation be effective?*

These research questions are answered following a detailed methodology presented in the later section of this study through interviews with stakeholders, results from citizen surveys, and field observation presented from two Norwegian UDPs as cases.

Theoretical background

Effective participation

Effective participation is more than just involving citizens in decision-making processes. The idea of effectiveness in participation is multifaceted and context-dependent (Rowe & Frewer, 2004). Rosener (1978) explained that participation is effective when its objectives are clearly defined, administrators are honest about their intentions, and citizens are reasonable in their demands.

Rowe and Frewer (2004) synthesised and defined effectiveness as “what works best when” (p. 549). The authors explained that effectiveness stems from fulfilling the purpose of participation through the representativeness of the wider public. Rowe and Frewer (2005) added that the construct of the effectiveness of the participatory process is dependent on mechanisms of participation as “the particular mechanism chosen and the way the mechanism is applied” (Rowe & Frewer, 2005, p. 264). As such, the authors specified context-dependent mechanism choice and application as the key to obtaining effective participation with the attributes of purpose and representativeness. This concept of participatory mechanism choice can also be seen as related to Arnstein’s (1969) degree of citizen participation framework “The rungs of the ladder.” The author defined participatory mechanisms through a ladder spanning from no participation; to the middle levels of tokenism through information and consulting up to the highest level of citizen power in forms of citizen control (Arnstein, 1969). Similar other typologies (IAP2, 2007; Ringholm et al., 2018) also discuss the degree of participation and the effectiveness of mechanisms in terms of the level of participation through a ladder-like typology.

Another concept for contextual choice of mechanisms and design for specific needs can be seen in terms of meaningful participation as defined by Sinclair (2004). The author highlighted that participation should be meaningful and effective for the involved people. This was done through the case of children’s participatory processes, where it is argued that for children to be involved, the participation would have to be crafted according to “children’s diverse needs for participation” (Sinclair, 2004, p. 112). Similar to this notion, participation with disabled children requires some degree of enjoyment to make the participation more meaningful and effective (Vänskä & Haataja, 2020). This is in line with findings from Senior et al. (2023), where effectiveness is implied to be composed of the impact of the process on the participants themselves, whether the process impacted the participants’ awareness, attitudes, and satisfaction.

To summarise, effectiveness in participation requires that the goals are correctly defined and participation values of “what” needs to be made explicit (Bidwell & Schweizer, 2021). There should be clarity of context for the use of the fitting mechanism (Rowe & Frewer, 2005) or designing the process (Bobbio, 2019) defined with “when.” To be effective through meaningful participation, consideration should be given to “whom” should be added. This chapter proposes an addition to the typology by (Rowe & Frewer, 2004) adding the meaningfulness component (Sinclair, 2004) as “What works best when and for whom?” as the framework in this study.

Effective digital citizen participation

Although DCP for urban planning and development was highlighted more after the COVID-19 pandemic (Hofstra et al., 2022), digital tools and ICT

were discussed well before for public participation. Macintosh (2004) generalised their report from 2003 on ICT and participation and defined four significant goals of DCP: reaching a wider audience to enable broader participation, supporting the participation process, accessibility, and engagement to enable more resounding contributions. If the effectiveness of DCP is looked at through the framework “What works best when and for whom?”, these components and dimensions defined by various studies can be seen in line with the broader design of DCP presented by Bobbio (2019). It is dependent on the contextual setting and requires the first step to identify the contextual problem that the process is bound to solve and focus on the purpose (Bryson et al., 2013). The initial design phase of an effective DCP (Santamaria-Philco et al., 2019) would be where objectives are set, problems are identified, and the purpose is defined according to the contextual setting (Bryson et al., 2013). The “what works best when” would be made explicit at the initial stage.

The selection and use of mechanisms for digital participation should be designed in response to consideration of the purpose of the process for citizen group (Nabatchi, 2012), considering the explanation of the “whom.” This phase is essential for dissemination and providing information about the process to targeted citizens. This can be done with consideration of youth participation (Literat et al., 2018) or requirements specific to the old population (Reneland-Forsman, 2018) or “for whom?” the specific participatory process is designed for. A design debate for the choice between “digital vs on-site debate” (Bobbio, 2019) should be considered again at this stage. Another essential design principle highlighted was that the process should not be rigid; reanalysis and justification for redesigning according to the specific needs should be there (Bryson et al., 2013).

Research design

This study’s research design follows an interpretative case study design in line with Walsham (1995). The methodological approach for this chapter consisted of primary field data from two rounds of interviews with stakeholders related to each project and triangulating them to the results of citizen surveys and field observation. Seven key stakeholders were interviewed, including four from the Fjordbyen project in Lier Municipality and three from the Torskeholmen project in Grimstad Municipality.

The first round of interviews was done with members of Eidos (the public-private-people partnership company overseeing the project) and city council personnel from Lier in March 2022. The second round of interviews was done with project leaders and city council staff from Grimstad in April 2022. Fjordbyen was selected as a case due to an extensive survey,

where youth were given a different survey than the ones in general. The interviews for Fjordbyen were procured through existing contacts within the project already known to the authors. In the case of the Torskeholmen project, the contacts in this project resulted from introductions made by a member of the Fjordbyen team who had also been working with the Torskeholmen project.

The contacts in the Fjordbyen project consisted of planning and leadership personnel in Eidos, an architect who has worked on the project previously, the mayor of the town involved in the project, and a member of the local council's planning department. The purpose of interviewing the Eidos personnel was to provide narrative context. This group was also primarily responsible for developing the two citizens' surveys. They were also responsible for disseminating and applying the survey results to the ongoing plan. The Architect was interviewed due to their involvement in the early stages of the project. The members of the planning group and the city mayor were interviewed to understand the motivation for involving citizens in more depth and the impact of the survey.

In Grimstad, a member of the development team was interviewed. They were interviewed in the same capacity as the Eidos staff were in Fjordbyen. The Managing Director of Grimstad City Council was also interviewed, along with a member of the planning department, both of whom were interviewed in the same context as the council staff members interviewed in Fjordbyen.

Field observation was performed by investigating the overall narrative behind the development of each project. Further documentation from the results of citizen surveys conducted in both cases was also analysed for this study. This is presented as a model in Figure 6.1, along with the theoretical viewpoint and observed pattern in the case study performed.

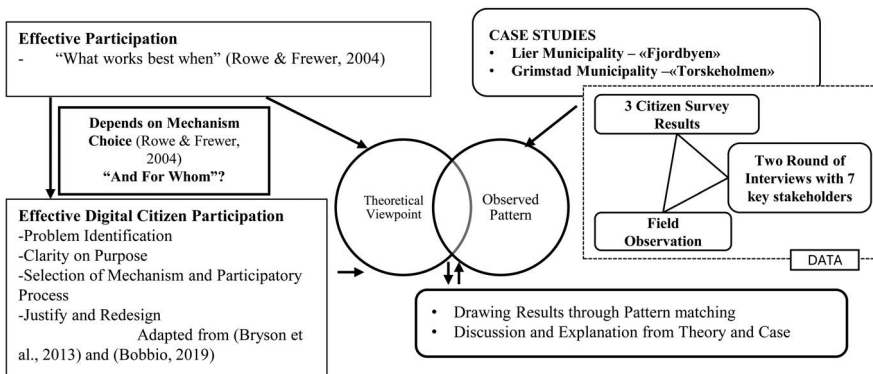


FIGURE 6.1 Interpretative case study research design (based on Walsham, 1995)

Case study profiles

Lier and the Fjordbyen project

The area of Lier and Drammen is approximately 38 kilometres from Norway's capital city of Oslo and is situated near (and in the case of Drammen, on) the Drammensfjord. Lier itself has a population of nearly 22,000 people, whilst Drammen has around 102,000 inhabitants (Fjordbyen Lier og Drammen, 2021). The vision of Fjordbyen was established in November 2006, and Eidos was given the mandate that it needed to start up the next stage of the process. The original plan presented on 17 November 2006 had 1000 houses; today's plan includes 16,000 houses (Fjordbyen Lier og Drammen, 2021). A concept illustration for the planned project is presented in Figure 6.2.

The Fjordbyen project is located on the shoreline in the Drammensfjord and represents, in effect, the development of a new neighbourhood or a small city. Fjordbyen will also feature artificial islands, a marina, parks for recreation, and a maritime centre. The new development aims to transform 220,000 m² of brownfield land into a zero-emission urban area that is a green and future-oriented, zero-emission urban area (Fjordbyen Lier og Drammen, 2021). While more than 15 years in the planning, the project in its current form began in 2002. Construction in the area began in 2019, with the groundwork for the Drammen Hospital and the construction of a new railroad station.

Citizen participation was an essential part of the development of Fjordbyen. The initial plan (workshops, public hearings, etc.) could not be executed due to COVID-19. However, surveys reinforced that the project priorities broadly



FIGURE 6.2 Fjordbyen early stage concept illustration (Fjordbyen Lier og Drammen, 2021)

reflected the needs and opinions of potential future residents. During the planning stage of Fjordbyen, Eidos and their consultants conducted two extensive citizen surveys. In 2020, two surveys were conducted with residents of Lierfjord about what qualities they would consider most important in a future neighbourhood or city development.

The first survey was conducted in April 2020 with young population (aged 13–19) and received 233 responses. The second survey consisted of 2407 respondents, with half of them being between 46–65 years of age and mainly spread equally in terms of gender balance (Fjordbyen Lier og Drammen, 2021).

The Grimstad project

The municipality of Grimstad has a population of approximately 23,000, with Grimstad town as the administrative centre. The area has a long tradition of being an area for fishing (GEU, 2022). With local industry being primarily focused on the maritime industry, the municipality is surrounded by islands and has a historic harbour, market square, and Grimstad Church. The redevelopment project in Grimstad shares qualities similar to Fjordbyen in that it has a lengthy planning process and hopes to achieve comparable results in new residential and commercial areas. The municipality is the landowner and owns the buildings and harbour, with large parts of the wharf facility falling into disrepair. Improvements to the area are becoming increasingly urgent (GEU, 2022). Revitalising the fjordside area, the project works with Grimstad Municipality to further develop Grimstad into an attractive city to live, work, and study for future generations. The concept art for this has been demonstrated in Figure 6.3.



FIGURE 6.3 Concept art for the redevelopment of Torskeholmen (GEU, 2022)

Out of several such revitalisation projects in Grimstad, one example is the development of the fjord side area of Torskeholmen. The plan finalised in 2019 hopes to deliver an improved harbour area, zero-emissions infrastructure where feasible, and to meet the anticipated needs of residents for a more attractive wharf, meeting places, parks, attractive urban spaces, and leisure-focused commercial installations such as cafes and restaurants (GEU, 2022). Due to COVID-19, the participation scheme for Torskeholmen was changed from a planned public meeting to a digital survey. The consultant firm Asplan-Viak conducted the poll. A total of 3474 replies were obtained from the digital survey, which is over 14% of Grimstad's total population (23,891) in 2020 (Grimstad municipality, 2021). Strong messages like "What will Torskeholmen become in future?" (Asplan-Viak, 2020) were prompt questions, and the survey revolved around tangible things that citizens wanted from the development project.

Results

As mentioned, effectiveness in DCP can stem from a greater number of citizen involvement or different groups of citizens being involved through careful consideration of the needs for participation and depends on the goal of the DCP. For both the cases involved in this study, effectiveness meant the involvement of a larger number of citizens and citizen groups to account for different voices of citizens as users of future developments to be heard in the projects. This section further discusses the results of citizen surveys and interviews from the case studies performed.

In the case of Lier, the first survey showed that young people (13–19 years old) wanted access to restaurants, school cycle routes, and festivals, as well as easy access from Fjordbyen to Oslo and Drammen (Fjordbyen Lier og Drammen, 2021). The respondents from the second survey were interested in the possibilities for hiking and green areas. There was also considerable emphasis on the importance of having neighbourhoods designed to be safe for families and the older generation. The surveys were primarily conducted online by general invitation via the local school network for the first survey on youth and by text message to all citizens with a registered address in Lier for the second and more exhaustive survey (Fjordbyen Lier og Drammen, 2021). Similarly, results from the Grimstad case show that people want development in one form or another at Torskeholmen. There are many strong opinions about how the area should be developed. There is a big difference between the preferred option for those over and under 50 years of age (Asplan-Viak, 2020). A positive effect of this type of participation was that far more young adults participated than usual in such processes (Asplan-Viak, 2020). The summary results from citizen surveys are provided for both cases in Table 6.1.

TABLE 6.1 Overview of Citizen Survey Results for Both Case

<i>Location</i>	<i>Context</i>	<i>Participation mechanism</i>	<i>Participants/ respondents</i>	<i>Municipal goal</i>	<i>Main highlights</i>	<i>Key characteristics</i>
Fjordbyen – Lier (Fjordbyen Lier og Drammen, 2021)	Transforming a brownfield industrial area into a sustainable mixed-use neighbourhood to attract capital and citizens	Citizen surveys for youth aged 13–19	233	Unveil local citizens’ expectations for the new development area from the perspective of young people	Outdoor areas for relaxation Access to restaurants Easy train and bus access School cycle route Outdoor areas	Use of Facebook and Instagram using short videos Use of local school networks Qualitative and quantitative, open-ended questionnaire
		Citizen survey for the general population	2407	Unveil local citizens’ expectations for the new development area	Hiking trails for walking and running Access to open green areas for leisure Neighbourhoods for children and the elderly Kindergarten and schools Public health services	Text messages to citizens Different questionnaires from the young ones Qualitative and quantitative, open-ended questionnaire
Torskeholmen – Grimstad (Asplan-Viak, 2020)	Urban redevelopment project Transforming a fishing and harbour area into a sustainable mixed-use neighbourhood and commercial space	Citizen survey	3474	Develop Grimstad into an attractive city to live, work, and study in for future generations	Outdoor seating, food services, and restaurants Meeting places, jetties, parks, and bathing Public bath (sea bath, sauna) Fish reception and fish sales Boat moorings Vegetation and green space	Qualitative questionnaire Open-ended and closed-ended questions Live meetings, SMS and social media, project website Incentives for participation Visual cues for development alternatives using “2D” and “3D” designs

Problem identification and clarity on purpose

Despite both projects being quite different in scope and contextual purpose, their motivations for citizen engagement were broadly the same. In the case of Fjordbyen, this was primarily due to the mandatory requirements of UDP. When addressing this process with Eidos, they viewed this as an embedded part of the process. According to one of the project leaders, Fjordbyen was planned as a zero-emission community at the concept stage, and according to the team at Eidos, the optimal use of the available space and planning of facilities ensured that involving citizens was crucial.

In the case of Grimstad, whilst sharing similar motivations to those of Fjordbyen, they also had a cultural dimension to consider. As mentioned earlier, the bay in Grimstad is partially occupied by fishermen who have fished in the same bay for several generations. According to the municipality's Chief Executive, this posed practical challenges for the redevelopment. The municipality and redevelopment partners wanted to utilise the bay better for boat traffic and tourism, which would require moving the fishing grounds further around the bay, supporting them with better facilities than they have today. However, the historical placement of the fisherman places a cultural challenge in implementing this change. According to one of the project managers:

The people on the boats are an important part of the city, even for people who don't fish. It's a part of the landscape. By involving citizens, we can help to find the best route possible to make this change by allowing citizens to be heard. It won't completely solve this problem, but I hope it shows that we and the Municipality do care, even if the decision is a hard one.

Representatives from both the Fjordbyen and Grimstad projects also made clear in their interviews that they did not want citizen engagement mechanisms to be tokenistic as in the middle pillars of [Arnstein \(1969\)](#) but to provide genuine citizen input into each project. When summing up the motivations of each project, they all shared the need for legislative compliance and a genuine desire to involve citizens. The latter aspects are multifaceted in their aim, ranging from ensuring a positive level of public relations on the project and attempting to optimise each one for its future residents best. How they differ, however, is that Grimstad placed a greater emphasis on navigating the cultural challenges posed by their urban redevelopment project by ensuring that citizens' voices were a part of the plan going forward.

Selection of mechanism and participatory process

Beyond the mere motivations for the development of the survey in terms of developing the project plans further, it was also essential to understand the

intentions of the citizens in terms of their feeling included in the planning process and impacting their views and opinions on the project more broadly and by using a survey with citizens (as well as other tools such as involving the press, city labs, and others), it provided scope to make difficult cultural decision, which, whilst not necessarily famous, are not done in a Draconian fashion and ignoring the needs of residents. According to the team at Eidos and the architect interviewed, what this entailed was not evident in Norwegian legislation, which allowed them to take advantage of this flexibility. This aspect was essential during COVID-19, resulting in some of their engagement tools (workshops, public hearings, etc.) being scrapped in favour of purely online engagement.

In Fjordbyen, whilst Eidos and the municipality were keen to listen to the opinions of all demographics, they focused very specifically on young people, even offering them a separate survey. According to the mayor of Lier, this was due to the longitudinal aspect of the project. The project's plan will take several decades to realise fully. Given this context, today's teenagers will be potential adult residents of a more complete Fjordbyen. This did not mean that older demographics were less relevant, however.

The mayor and the team at Eidos were keen to account for all demographics of residents, as their needs will help the project develop a more egalitarian new community that represents as many people as possible as their needs will be broadly the same, even if they do not eventually live there themselves. The original plan, however, was not to necessarily have the citizen survey as the only tool to gauge the project's progress. They originally wanted to complement this data with public hearings and workshops. However, a consulting architect said, *"the Covid-19 pandemic required us to change our approach to our study. A survey became our only choice, so we had to make sure we gained as much as possible from it."*

The Grimstad project had similar intentions but incorporated a cultural duty of care. This was also highlighted in their questionnaire design, where people were asked what tangible things they wanted from the city centre. Other design elements included questions about cultural preferences, such as "What do they like most about the city centre today?" and development alternatives with visual cues for choosing alternatives. Open-ended comment-based questions were also used.

Discussion

This theoretical foundation, rooted to [Rowe and Frewer \(2005\)](#), typology of "What works best when" highlighted that effectiveness in participatory processes requires selecting appropriate mechanisms that best suit the context and problem. This study synthesised and extended the discussion of effectiveness to include the needs of participants for meaningful participation

(Senior et al., 2023; Sinclair, 2004). While the typology discusses contextual clarity and problem identification as prerequisites of effective participation, adding the “for whom?” concept addresses the necessity of participants for meaningful participation before participatory mechanisms are selected.

Both cases demonstrated the potential of DCP to generate a more significant representation than traditional methods. The cases adopted DCP, the most feasible solution for participatory processes during the pandemic. Fjordbyen and Grimstad capitalised on the shift to DCP as an opportunity to include broader and often underrepresented audiences at town hall meetings and seminars, such as youths and young participants. In Fjordbyen, specially designing the survey for young participants (13–19) became a strategic decision to plan development and UDPs for future generations. As discussed in the theory, this tailored approach to participation adds to the effectiveness of participation (Sinclair, 2004), making it meaningful to the participant. This can be explained as the “for whom?” approach to effectiveness. The redevelopment project in Grimstad highlighted the importance of DCP in engaging a broader section of the population, with more than 14% of the municipal population participating. In Grimstad, the more extensive involvement was seen due to the cultural dimensions of existing settlements under redevelopment. At the same time, Fjordbyen is an entirely new neighbourhood built on a brownfield site without existing residents. The project extended its citizen participation efforts to the nearby town of Drammen, which was expected to form part of the future diaspora to Fjordbyen in Lier Municipality. This approach to defining the participant pool broadens the scope of DCP, but this can be further discussed in future research about who shall consist of “for whom?” considerations of effective participation.

Effective DCP demonstrates the capacity to offer flexibility in participation and provide relevant information with flexibility and detail (Macintosh, 2008); moreover, the designability of the DCP mechanism (Bouzuenda et al., 2019) is a crucial aspect. This study agreed with the notion that effectiveness in DCPs is the attribute of the design of DCPs (Bobbio, 2019) and has framed the findings in four headings, illustrated as a model in Figure 6.1 of this study. The first two steps of problem identification and contextual clarity have been discussed in both cases in detail, emphasising the motivation and intentions of the participatory process not to be tokenistic. The use and development of tools like visual design and cues, 3D maps, and visualisation were emphasised to include designability to DCP. This allowed citizens to visualise proposed developments better and provide feedback on tangible aspects of the UDP, to understand the future urban environment better and generate deeper cultural and contextual responses. Although through the approach of DCP, broader participation with more voices in terms of the number of participants was discussed, it can be argued that using visual cues and 3D visualisations in surveys was ineffective for people with less digital skills. This

leads to risks like leaving people with low competence in digital technologies with no voice in development, although more than 14% of people were represented. Another risk associated with over-reliance on DCP with more digital tools presents people with an idealised and utopian urban landscape. This can lead to unrealistic expectations and distrust in the participatory process due to outcome differences. Nonetheless, redesigning participatory processes or DCP through an iterative design was not presented in detail. This was due to the short period of data collection in the cases. A longitudinal case study design with a specific focus on redesign and effectiveness as the project changes are made according to results presented by DCP can be studied to determine the implications of redesign for DCP's effectiveness.

In conclusion, DCP, as a participatory tool, has the potential to produce effective participation for future UDPs, contributing to smarter development and progress. Effective DCP is essential for moving beyond superficial engagement to empowered and meaningful involvement. This chapter presented fundamental principles of effectiveness in DCP, supported by case studies that, while rooted in the Norwegian context, offer insights applicable to a wide range of UDPs. However, applying these findings must be carefully adapted to each UDP's specific needs and contexts.

Implications for practice and policy

Firstly, DCP opens possibilities for the inclusion of a wider audience. DCP should not be a workaround but a deliberate choice to include broader groups, like the younger population, who are more likely to be engaged with digital tools.

Secondly, DCP needs to account for cultural dimensions and design processes that respect local values, tailoring participatory processes to specific problems of the local context. DCP, with specific clarity on purpose and targeting the problem identified, enhances the relevance and acceptance of participation initiatives, as demonstrated by the cases chosen in this chapter.

Moreover, the selection of mechanisms for participation, like digital surveys and meetings, should be done with special care to effectiveness, as a framework for a *"one size fits all"* approach to DCP may not be effective due to the varying needs of participants. The typology *"What works best when and for whom?"* can be used to design meaningful and effective processes that empower people to become active contributors and a part of planning UDPs.

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References

- Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of Urban Technology*, 22(1), 3–21. <https://doi.org/10.1080/10630732.2014.942092>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/10.1080/01944366908977225>
- Asplan-Viak. (2020). Spørreundersøkelse oppsummering [Survey Summary] (620783-03). *Grimstad Kommune*. Retrieved June 05, 2024, from https://www.grimstad.kommune.no/_f/p1/i04682971-173a-4906-9337-4d8546b5d06d/sporreundersokelse-oppsummering_2020-11-05.pdf
- Batty, M., Axhausen, K. W., Giannotti, F., Pozdnoukhov, A., Bazzani, A., Wachowicz, M., Ouzounis, G., & Portugali, Y. (2012). Smart cities of the future. *European Physical Journal: Special Topics*, 214(1), 481–518. <https://doi.org/10.1140/epjst/e2012-01703-3>
- Bednarska-Olejniczak, D., Olejniczak, J., & Svobodová, L. (2019). Towards a smart and sustainable city with the involvement of public participation—the case of Wrocław. *Sustainability (Switzerland)*, 11(2), 1–33. <https://doi.org/10.3390/su11020332>
- Berntzen, L., & Johannessen, M. R. (2016). The role of citizen participation in municipal smart city projects: Lessons learned from Norway. *Public Administration and Information Technology*, 11, 299–314. https://doi.org/10.1007/978-3-319-17620-8_16
- Bidwell, D., & Schweizer, P. J. (2021). Public values and goals for public participation. *Environmental Policy and Governance*, 31(4), 257–269. <https://doi.org/10.1002/eet.1913>
- Bobbio, L. (2019). Designing effective public participation. *Policy and Society*, 38(1), 41–57. <https://doi.org/10.1080/14494035.2018.1511193>
- Bouzguenda, I., Alalouch, C., & Fava, N. (2019). Towards smart sustainable cities: A review of the role digital citizen participation could play in advancing social sustainability. *Sustainable Cities and Society*, 50, 101627. <https://doi.org/10.1016/j.scs.2019.101627>
- Bryson, J. M., Quick, K. S., Slotterback, C. S., & Crosby, B. C. (2013). Designing public participation processes. *Public Administration Review*, 73(1), 23–34. <https://doi.org/10.1111/j.1540-6210.2012.02678.x>
- Cortés-Cediel, M. E., Cantador, I., & Bolívar, M. P. R. (2021). Analyzing citizen participation and engagement in European smart cities. *Social Science Computer Review*, 39(4), 592–626. <https://doi.org/10.1177/0894439319877478>
- Criado, J. I., Sandoval-Almazan, R., & Gil-Garcia, J. R. (2013). Government innovation through social media. *Government Information Quarterly*, 30(4), 319–326. <https://doi.org/10.1016/j.giq.2013.10.003>
- Fjordbyen Lier og Drammen. (2021). *Fjordbyen Lier og Drammen*. Retrieved June 12, 2024, from <https://fjordbyenlierdrammen.no/fjordbyen>
- GEU. (2022). Presentasjon for kommunepanutvalget – 03.02.2022 [Presentation of the plan for the Grimstad Regeneration Project]. *Grimstadpodden*. Retrieved June 02, 2024, from <https://grimstadpodden.com/aapnesendinger.php>
- Grimstad municipality. (2021). Årsmelding (Annual report) 30-03-2020. *Grimstad Kommune*. Retrieved June 03, 2024, https://www.grimstad.kommune.no/_f/p1/i20a25a06-ed05-4425-aa91-d780e8e05973/arsmelding-2020.pdf

- Hill, R., Betts, L. R., & Gardner, S. E. (2015). Older adults experiences and perceptions of digital technology: (Dis)empowerment, wellbeing, and inclusion. *Computers in Human Behavior*, 48, 415–423. <https://doi.org/10.1016/j.chb.2015.01.062>
- Hofstra, R., Michels, A., & Meijer, A. (2022). Online democratic participation during COVID-19. *Information Polity*, 28(3), 395–410. <https://doi.org/10.3233/IP-211540>
- IAP2. (2007). *IAP2 Federation: Three pillars for effective public participation (P2)*. International Association for Public Participation. https://cdn.ymaws.com/sites/iap2.site-ym.com/resource/resmgr/files/IAP2_Federation_-_P2_Pillars.pdf
- Kitchin, R. (2014). The real-time city? Big data and smart urbanism. *GeoJournal*, 79(1), 1–14. <https://doi.org/10.1007/s10708-013-9516-8>
- Literat, I., Kligler-Vilenchik, N., Brough, M., & Blum-Ross, A. (2018). Analyzing youth digital participation: Aims, actors, contexts and intensities. *Information Society*, 34(4), 261–273. <https://doi.org/10.1080/01972243.2018.1463333>
- Macintosh, A. (2004). Characterizing E-participation in policy-making. *Proceedings of the 37th Annual Hawaii International Conference on System Sciences*, 1–10. <https://doi.org/10.1109/HICSS.2004.1265300>
- Macintosh, A. (2008). *E-democracy and E-participation research in Europe*. Digital Government: E-Government Research, Case Studies, and Implementation, 85–102. https://doi.org/10.1007/978-0-387-71611-4_5
- Nabatchi, T. (2012). Putting the “Public” back in public values research: Designing participation to identify and respond to values. *Public Administration Review*, 72(5), 699–708. <https://doi.org/10.1111/j.1540-6210.2012.02544.x>
- Reneland-Forsman, L. (2018). ‘Borrowed access’ – The struggle of older persons for digital participation. *International Journal of Lifelong Education*, 37(3), 333–344. <https://doi.org/10.1080/02601370.2018.1473516>
- Ringholm, T., Nyseth, T., & Hanssen, G. S. (2018). Participation according to the law. *European Journal of Spatial Development*, 67, 1–20. <https://doi.org/10.30689/EJSD2018:67.1650-9544>
- Rosener, J. B. (1978). Citizen participation : Can we measure its effectiveness? *Public Administration Review*, 38(5), 457–463.
- Rowe, G., & Frewer, L. J. (2004). Evaluating public-participation exercises: A research agenda. *Science Technology and Human Values*, 29(4), 512–557. <https://doi.org/10.1177/0162243903259197>
- Rowe, G., & Frewer, L. J. (2005). A typology of public engagement mechanisms. *Science Technology and Human Values*, 30(2), 251–290. <https://doi.org/10.1177/0162243904271724>
- Sæbø, Ø., Rose, J., & Skiftenes Flak, L. (2008). The shape of eParticipation: Characterizing an emerging research area. *Government Information Quarterly*, 25(3), 400–428. <https://doi.org/10.1016/j.giq.2007.04.007>
- Santamaria-Philco, A., Canos Cerda, J. H., & Penades Gramaje, M. C. (2019). Advances in E-participation: A perspective of last years. *IEEE Access*, 7, 155894–155916. <https://doi.org/10.1109/ACCESS.2019.2948810>
- Schmidt, A. (2023). Strategic information: A qualitative study on the use of digital curriculum vitae for social work with vulnerable clients. *The British Journal of Social Work*, 53(6), 3164–3180. <https://doi.org/10.1093/bjsw/bcad094>
- Senior, C., Jowkar, M., Temeljotov-Salaj, A., & Johansen, A. (2021). Empowering citizens in a smart city project one step at a time: A Norwegian case study. *2021 IEEE European Technology and Engineering Management Summit (E-TEMS)* (pp. 10–15). <https://doi.org/10.1109/E-TEMS51171.2021.9524892>
- Senior, C., Temeljotov Salaj, A., Johansen, A., & Lohne, J. (2023). Evaluating the impact of public participation processes on participants in smart city development: A scoping review. *Buildings*, 13(6). <https://doi.org/10.3390/buildings13061484>

- Sinclair, R. (2004). Participation in practice: Making it meaningful, effective and sustainable. *Children and Society*, 18(2), 106–118. <https://doi.org/10.1002/chi.817>
- Temeljotov-Salaj, A., Gohari, S., Senior, C., Xue, Y., & Lindkvist, C. (2020). An interactive tool for citizens' involvement in the sustainable regeneration. *Facilities*, 38(11/12), 859–870. <https://doi.org/10.1108/F-09-2019-0099>
- Toukola, S., & Ahola, T. (2022). Digital tools for stakeholder participation in urban development projects. *Project Leadership and Society*, 3, 100053. <https://doi.org/10.1016/j.plas.2022.100053>
- Vänskä, S. S. N., & Haataja, L. (2020). What makes participation meaningful? Using photo-elicitation to interview children with disabilities. *Physical & Occupational Therapy in Pediatrics*, 40(6), 595–609. <https://doi.org/10.1080/01942638.2020.1736234>
- Walsham, G. (1995). Interpretive case studies in IS research: Nature and method. *European Journal of Information Systems*, 4(2), 74–81. <https://doi.org/10.1057/ejis.1995.9>

7

SUSTHACK

Hackathons as a model of citizen participation in innovating for sustainable urban development

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Introduction

Cities around the world are facing rising problems of rapid urbanisation, climate change, and shrinking resources. As a result, the need for innovative solutions that support sustainable urban development is higher than ever. Governments and urban planners rely on technology to address issues like energy efficiency, waste management, water conservation, mobility, and social equity. In this context, innovating for sustainable urban development can improve urban living through digital technologies and citizen engagement (Lee et al., 2023; Trischler et al., 2023). The involvement of citizens in the innovation process plays a critical role in addressing many societal issues and creating value for both communities and the environment. Citizens' participation in co-identifying, co-creating, prioritising, field-testing, and assessing the impact of sustainable urban solutions can drive noticeable improvements in urban life while accelerating the transition towards greener cities (Anthony, 2023; Trischler et al., 2023).

One effective method of catalysing innovation for sustainable urban development with citizen engagement is through hackathons as a model for collaborative innovation (Porras et al., 2019). Traditionally, hackathons are associated with the tech industry as an intensive, time-bound event where participants collaboratively solve problems using technology and creativity. Scholars have noted the potential of hackathons to transcend the typical techno-innovation and entrepreneurial focus, transforming them into inclusive, community-based events that address sustainability challenges at the local or global level (Briscoe & Mulligan, 2014; Perng et al., 2018; Porras et al., 2019). Hackathons that focus on sustainability

can mobilise tech enthusiasts and stakeholders to address local urban challenges collaboratively, ultimately fostering a symbiotic relationship between city planners, researchers, and citizens in co-designing urban development strategies (Adisa et al., 2023; Pogačar & Žižek, 2016).

As the epicentres of global growth, cities are expected to take on significant roles in meeting sustainability goals and addressing the triple planetary (climate change, biodiversity loss, and pollution) challenges threatening human and environmental well-being (World Bank, 2023). Previous studies have explored different ways to engage citizens, such as focus groups, town hall meetings, workshops, community surveys, public consultations, advocacy, and social media (Anthony, 2023; Johnson & Robinson, 2014). These methods help mobilise communities and encourage dialogue, compilation of diverse ideas, and collective action for community development. However, these existing methods fall short of seeing citizens as a techno-innovation design source. Citizens have been identified as a strong source of socio-technical innovation to tackle unsustainable practices like mobility, energy, consumption, housing, water, food, and related challenges (Trischler et al., 2023) through citizens-driven multi-stakeholder participation. As such, hackathons stand out as a socio-technical model of engagement that focuses on rapid innovation, collaboration, and competition (Briscoe & Mulligan, 2014; Porras et al., 2019) while also including features such as structured process, brainstorming, teamwork, inclusivity, and outcome-oriented.

The advancements in information and communication technologies (ICT) provide new opportunities for citizen participation in sustainable urban development. Citizen participation is crucial for achieving the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 7 (ensuring affordable and clean energy efficiency), SDG 11 (making cities and communities sustainable), SDG 12 (ensuring sustainable consumption and production), and SDG 13 (taking steps to combat climate change and associated impacts). Mobile apps, IoT, AI, big data analytics, and web portals can facilitate collective action by empowering citizens for actions and connecting them with policymakers (Adisa et al., 2024; Pogačar & Žižek, 2016). Furthermore, the adoption of hackathons as a socio-technical model for urban innovation has yet to be fully realised, especially in terms of integrating non-technical participants, such as policymakers and citizens. Citizens' participation in hackathons can help identify and prioritise local issues while balancing the competing interests of technologists, policymakers, and the community. By bridging this gap, hackathons provide a valuable opportunity to co-design sustainable urban solutions, combining top-down government-led and bottom-up citizen-driven efforts.

This chapter explores the role of hackathons as a model of citizen participation in urban innovation, responding to the increasing need for citizen-driven, innovative approaches to sustainable urban management (Anthony,

2023; Pogačar & Žižek, 2016). This study aims to answer the following research question:

- How do hackathons facilitate citizen participation in sustainable urban development?

The remainder of the chapter is organised as follows: the second section covers background literature, the third section covers methodology, the fourth section describes examples of hackathon solutions, the fifth section covers the discussions, and the sixth section concludes with implications for practice and policy.

Background

Hackathon originated from the words ‘hack’ and ‘marathon’ (Briscoe & Mulligan, 2014). The primary goal of hackathons is ‘finding a solution.’ Researchers have defined hackathon in various ways: as an intensive gathering that brings together developers, programmers, designers, and technology enthusiasts to collaboratively conceptualise software solutions and showcase a prototype application to solve a specified problem (Briscoe & Mulligan, 2014; Zapico et al., 2013); as a practical way of solving real-life problems that are built on innovation, collaboration, and creative thinking (Porrás et al., 2019); as a participatory platform to bring participants together to collaborate on addressing shared challenges of interest (Götzen et al., 2020). Hackathons usually last between one and five days.

Hackathons format

Hackathons can be technology-focused or issues-focused (Briscoe & Mulligan, 2014; Heller et al., 2023). A technology-focused hackathon is organised by tech companies or universities for education or product development, with specific technology and application domains to bring out innovation (Porrás et al., 2018). In contrast, an issues-focused hackathon offers quick, cost-effective, tangible, and action-ready solutions to tackling specific issues identified by the organisers (Briscoe & Mulligan, 2014; Heller et al., 2023). Such issues can be socio-political, geographical, or organisational rooted, comprising participants with technology and non-technology backgrounds (Briscoe & Mulligan, 2014).

The hackathon format has evolved from voluntary, self-organised events to highly structured, collaboratively organised, industry-sponsored, and partnering with cities and municipalities (Götzen et al., 2020; Perng et al., 2018) or companies and universities to crowdsource solutions to challenging issues or sourcing ground for skilful potential employees or new entrepreneur

(Porrás et al., 2019). Furthermore, Perng et al. (2018) argued that applying hackathons to urban issues should be viewed beyond the techno-innovation and digital entrepreneurial lens instead as a more inclusive and engaging approach to placed-based and community needs for sustainable urbanisation and often implemented in different formats, structures, criteria, and goals. Major attributes of a hackathon event (Nolte et al., 2020; Pogačar & Žižek, 2016) include timing, team formation, goal-oriented, co-creation, collocation, and pitching.

Hackathons for sustainability innovation

Researchers have demonstrated the importance of hackathons for sustainability innovations and engagement. For example, the Green Hackathon series originated in Sweden and brings citizens, environmentalists, and experts together to co-innovate sustainable activities in energy, mobility, food, and climate change (Zapico et al., 2013). The Urban Prototyping London hackathon focused on using technology, art, and design for civic participation in urban developments (Briscoe & Mulligan, 2014). Shiramatsu et al. (2015) described a civic hackathon to encourage citizens and technological experts to collaborate in prototyping innovative solutions to tackling sustainability and socio-communal issues. The Climathon Hackathon (Mee et al., 2021) is an EU-founded series by EIT Climate-KIC to empower citizen actions and help cities become more sustainable by prioritising green solutions for local issues. The Solve the SDGs hackathon by the Aalto Ventures Program (AVP, 2024) focuses on solving local sustainability challenges using a multi-partnership approach.

Similarly, the sustainability-focused hackathons (SustHack) is an ongoing hackathon series in Finland (recently extended to Malaysia) that brings researchers, businesses, municipals, and citizens as active participants to generate ideas and develop prototype solutions to tackle local sustainability issues (Adisa et al., 2023). The result from these sustainability hackathons indicates the promising value of hackathon engagement in promoting sustainability awareness and empowering participants as change agents for sustainable actions in urban development. Governments and organisations can sponsor hackathons as a strategy to promote open data and civic participation and empower citizens while providing resources for software professionals to tackle identified problems (Johnson & Robinson, 2014).

The effectiveness of hackathons in building solutions to wicked socio-environmental problems comes from invested participation driven by focusing on significant local issues, mentorship, collaboration, and prizes to promote inclusiveness and competitiveness. While the informal structure of hackathons allows teams to innovate and deliver new products

or solutions (Briscoe & Mulligan, 2014), there is a need for a model to redefine the role of organisers and extend participants beyond those with the technical knowledge to drive the creation of new ideas and innovative solutions from hackathons (Kamariotou & Kitsios, 2022). Such a model considers citizens as important stakeholders and middle-out actors in designing products and services that directly impact them and their immediate environment.

Urban living labs and hackathons

Understanding the importance of citizen participation and the willingness to improve active participation in urban development is crucial. The SustHack model builds on the urban living labs methodology to strengthen the hackathon format, bridge the entry barriers, and facilitate post-hackathon implementation through a quick innovation with citizens approach rather than innovating for citizens. Furthermore, SustHack called for early user engagement in the identification and ideation phase of the development process and subsequent prototype testing to establish an alignment of citizens' needs with the innovations being developed. The urban living labs represent an open, collaborative, and inclusive approach to innovation processes to create competencies, new services, products, and socio-infrastructures through actively engaging diverse stakeholders, including relevant businesses, experts, universities, and citizens (Leminen et al., 2012). Urban living labs emerge as an approach to tackle the complex challenges of sustainable urban innovations and accelerate innovative development, experimentation, and knowledge in urban real-life settings, emphasising citizens' co-creation and participation to increase urban sustainability (Steen & van Bueren, 2017). Accordingly, the urban living labs are often characterised by their goal (tested and replicable innovative solutions), activities (co-creation, co-design, and iterations in-between), participants (involving diverse stakeholders), and context (real-life issues) over a long period.

Pogačar and Žižek (2016) described urban hackathons as a short event that combines the potential of ICT solution development and civic engagement, emphasising the participation of multiple professionals of diverse perspectives and skills to quickly co-create solutions for sustainable urban development (Franco et al., 2021), and moving beyond code-only to include lending voices, generating public initiatives, drafting proposals backed by open data, and strategic planning (Pogačar & Žižek, 2016). Furthermore, the concept of co-creation (Akterujjaman et al., 2022) represents an emerging paradigm shift in sustainable urban innovation development wherein municipalities and communities strategise and leverage their collective resources, knowledge, expertise, and needs to create novel solutions that

directly address the concerns of citizens. Such an approach deviates from the usual top-down directives to an improved participatory and inclusive bottom-up initiative for a sustained post-hackathon engagement that the SustHack model emphasises.

While hackathons and living labs emphasise collaboration and problem-solving, they differ in duration, depth of engagement, and outcomes. Hackathons offer short-term innovation events, are time-bound, and have an intense engagement to produce tangible solutions as prototypes. They also require refinement post-hackathon for long-term implementation. Meanwhile, living labs offer a long-term environment for continuous engagement to refine the final solutions iteratively, and they can last for several months or years.

Methodology

The case study approach was applied in this study for detailed, multi-dimensional examinations of complex issues in a real-life setting (Crowe et al., 2011) within the context of urban sustainability hackathons. The theoretical relationship between hackathons and urban sustainability was identified through the literature, and the SustHack model has been previously validated via joint hackathon projects between LUT University, Finland, and Sunway University, Malaysia (Adisa et al., 2023). Furthermore, the SustHack model is built on the premise that there exists (or readiness to develop) a culture of *'willing-participatory'* where participants engage voluntarily due to their interest/awareness in sustainability and contribute their skills and ideas; *'seeking-participatory'* where participants are actively looking for opportunities to participate in sustainable activities for knowledge, empowerment, or potential collaboration; and *'developing-participatory'* where participatory efforts are currently being developed or refined as a learning platform to build actionable skills and understanding for strengthening sustainability awareness in the municipality.

The 'SustHack' (Figure 7.1) model for citizen participation consists of three phases (the pre-hack, main-hack, and post-hack) and acts as a techno-innovation mediator between top-down urban governance and bottom-up civic engagement, facilitating interaction with multiple stakeholders to design innovative products and services with citizens for sustainable urban development.

The SustHack supported hackathon hybridisation (on-premises and remote) to create a broader engagement strategy that leaves no one behind. The model can be used to tackle related sustainability issues as it offers a quicker and more practical way of creating sustainability awareness and engaging the citizens about related policies, technological resources, data,

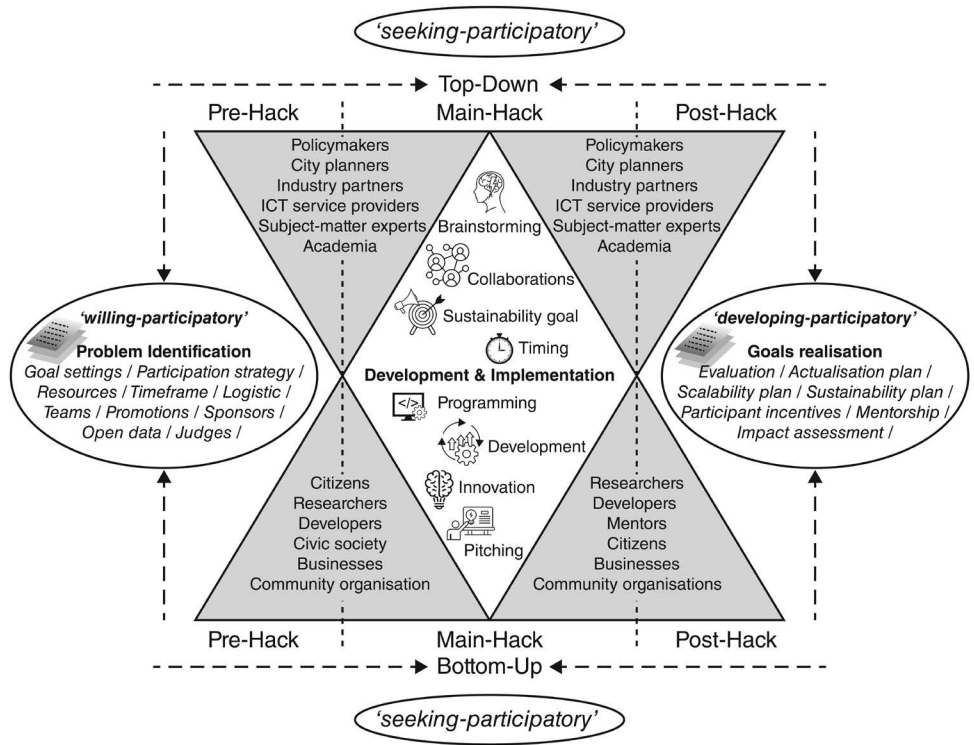


FIGURE 7.1 The SustHack model for citizen participation in sustainable urban development

Source: Authors.

and information exchange available within the city to solve local sustainability issues and ensure that the resulting prototypes reflect the input of the participants.

- Pre-hack: It builds on the existence of *'willing-participatory'* and covers the problem identification and pre-engagement of citizens within sustainable urban development to co-identify and prioritise immediate challenges through top-down (government-driven) and bottom-up (citizen-driven) engagements. Participation can be one-to-many, many-to-one, or many-to-many actors where citizens freely express their opinions and highlight their needs.
- Main-hack: Using the concept of *'seeking-participatory,'* the actual innovation and implementation of prototype solutions to tackle the identified challenges occurred in this hackathon phase. Key actors include developers, researchers, partners, interested citizens, and judges who are experts from universities, industry, and government establishments. Activities include brainstorming, data analysis, programming, prototyping new solutions, pitching, and winner selection. The pitching is evaluated based on feasibility, value proposition, socio-environmental impact, and relevancy to urban needs and sustainability.
- Post-hack: This phase strives to strengthen *'developing-participatory'* to refine *'citizens participation,'* *'goal realisation,'* and *'actualisation plan'* as a collective effort for continuous improvement, evaluation of the prototype, funding, partnership, and long-term impact assessment of the final solution. It encourages municipalities to recognise feedback and strategise on funding the hackathon outcomes for city-wide implementation.

The SustHack model was inspired by traditional hackathons and focused on environmental, individual, and socio-economic impact. The model is structured to involve diverse stakeholders with key sustainability interests who are willing and seeking to participate in solving socio-environmental issues. It lowers the entry barrier to urban living labs and emphasises post-hack funding and follow-up to build a community of experts to support promising prototypes via interdisciplinary collaboration beyond a single institution. [Table 7.1](#) highlights some differences between the general hackathon and the SustHack model.

Roles of SustHack participants

The hackathon team included in this study was drawn from the LUT Master's students from the Department of Software Engineering (SE), especially from the programmes of SE for Green Deals (SE4GD), SE and Digital Transformation, Digital Systems and Service Development, and Sustainable ICT Solutions

TABLE 7.1 SustHack vs Other Hackathons

<i>Characteristics</i>	<i>SustHack</i>	<i>Other Hackathons</i>
Focus and goals	Environmental, socio-economic, and individual impact. Balance of people, planet, and prosperity.	Broad product-driven tech innovation, user experience, and market potential.
Participants	Willing and seeking participatory, sustainability mindset, and interest.	Tech-centric with a business mindset.
Problem-solving approach	Systems thinking; interdisciplinary collaboration.	Product-focused, may involve interdisciplinary or multidisciplinary collaboration.
Evaluation	Issued-based, impact, and long-term sustainability.	Innovation, usability, market potential.
Resources and support	Environmental data, geodata, tech tools, reports.	Tech tools and software development resources.
Outcomes	Long-term partnerships, community, and policy impact.	Product launches/integrations; startups, commercialisation.
Engagement	Community-centred, civic actions.	User-centred, entrepreneurial actions.

of Tomorrow. Other stakeholders include researchers and subject-matter experts, municipal actors, citizens, and interested businesses. The findings are presented through the authors' experience organising and actively interacting with multiple stakeholders in and outside the university, from ideation to validation, to ensure relevance to the community and citizens' needs. [Table 7.2](#) shows the role of each participant group.

SustHack in practice

The suitability of the SustHack model to address sustainable urban development and foster collective citizens' participation was demonstrated in a series of SustHack coordinated by LUT University, Finland, and Sunway University Malaysia. Data were collected between 2022 and 2023 from a total of four hackathons via mixed methods covering hackathon observations (N=4), pre-, and post-hackathon surveys involving participating students, citizens, and businesses (N=314), and semi-structured interviews conducted for each participating student team (N=12) and other stakeholders (N=10). The interview data were transcribed with Microsoft OneNote, followed by qualitative

TABLE 7.2 Roles and Contributions

<i>Participants</i>	<i>Role</i>	<i>Contribution</i>
Researchers	<ul style="list-style-type: none"> • Knowledge providers • Problem framers • Hackathon organiser 	<ul style="list-style-type: none"> • Provide scientific insight on key urban sustainability issues. • Provide mentorship and guidance on evidence-based problem-solving. • Validate feasibility and impact of solutions.
Municipal actors	<ul style="list-style-type: none"> • Policy and regulation owners • Problem framers/owners • Resource providers 	<ul style="list-style-type: none"> • Identify local sustainability issues. • Provide insights on regulations, policies, and directives. • Provide resources such as data, infrastructure, and funding.
Businesses	<ul style="list-style-type: none"> • Industry experts • Problem owners/solution funders 	<ul style="list-style-type: none"> • Provide business knowledge on feasibility and market potential. • Provide resources and funding to scale solutions.
Participating students	<ul style="list-style-type: none"> • Innovators and programmers • Designers and problem-solvers 	<ul style="list-style-type: none"> • Develop new and innovative ideas. • Demonstrate technical skills through creativity and rapid prototyping.
Participating citizens	<ul style="list-style-type: none"> • Problem identifiers/owners • End-users • Community advocates 	<ul style="list-style-type: none"> • Provide insights into local community issues. • Evaluate and give feedback on solutions. • Advocate and promote solutions to larger communities.

analysis and coding. The emerging themes from data analysis provide a clear understanding of how the hackathons strengthen sustainability awareness among the participating citizens and the student teams. The themes include innovative solutions, collaboration, environmental impact, learning experience, technology integration, challenges, awareness, community engagement, motivation, willingness, relevancy of outcomes, post-hackathon plans, and funding. The sponsors, mentors, juries, and organisers also emphasise the value of including citizens as co-identifiers of issues and field testers of SustHack outcomes.

The hackathons were organised to empower citizens, ICT enthusiasts, policymakers, and relevant stakeholders on their critical role in sustainability initiatives. The SustHack is designed to last between three and five days and is specifically organised to address SDGs issues. Each event started with a background workshop from sustainability experts (city and industry representatives and researchers) to provide a heads-up on the sustainability themes/challenges, guidelines, and engagement strategies to curate ideas further and implement innovative solutions. Moreover, followed by the main

hackathon – rigorous activities from each student team, including problem identification/finalisation (initial engagement to validate issues to work on), development and implementation (brainstorming, design, and pitching), goal realisation (evaluation, validation, and post-hack testing/deployment plans), the jury selected the winning solutions based on the set criteria – most innovative/engaging/empowering, impactful, and promising solution.

Examples of innovative solutions from the SustHack events

The solutions targeted selected SDGs (SDGs 7, 11, 12, and 13) to empower citizens' participation in identifying and developing solutions to tackle local sustainability issues and promote greener urban developments. The emerging solutions include (1) *FoodConnect* – a solution to 'reduce food waste, one meal at a time' and improve food accessibility for urban residents. (2) The *Offtime* – an app to empower urban residents for sustainable energy consumption. (3) *CityShare* – an all-in-one solution to reduce CO₂ emissions through community services, item swapping, sustainable mobility, food sharing, and sustainability campaigns to make the city more sustainable for its residents.

Realised outcomes

The *FoodConnect* is a mobile app that demonstrated the ability to reduce food wastage by allowing established restaurants to provide low-cost meals to interested residents. Additionally, restaurants and targeted customers can track their contribution to reducing urban food wastage in real time, creating a sense of commitment and action against food waste. The *Offtime* is a mobile app that demonstrates the capability to improve energy efficiency and promotes a universal understanding of sustainable lifestyles. It sent participants three new challenges to accept at least one. The challenges include unplugging electronic devices while meditating for an hour, having a candle dinner, readjusting indoor temperatures, cycling or using the washing machine during a green hour, and using public mobility. Citizens are requested to update their completed challenges before seeing other participants' contributions to promote engagement and encourage other users to complete their daily challenges. The approximate energy saved by each user is calculated and displayed on their dashboard. Users can see their monthly energy-saving, sustainability milestones, and activity history on a dashboard. The *CityShare* demonstrated its relevance via web and mobile apps, wherein citizens can share human and goods mobilities and personal items at zero or low cost. It promises to accommodate the changes in the city's needs, where citizens can suggest and vote for ideas to improve their neighbourhood. Key features include incentives, rewards and recognition, reminders, feedback, social

comparison, impact milestones, and related persuasive features to ensure a wide range of acceptability.

Anticipated and realised impacts

The emerging impacts are grouped into realised impacts and anticipated impacts. Through the interview, survey, and authors' observations, the realised impacts include instigating pro-environmental behaviour, improved awareness, and commitment to sustainable actions. Specifically, it helped the participating students to demonstrate multiple skills and competencies in a practical setting while networking for long-term post-hackathon outcomes' implementation. It also offered a unique chance for citizens to identify and share ideas about some of the issues affecting the city's path to sustainability. For the municipals, the SustHack offers a new partnership for knowledge exchange and quick ways to engage citizens, researchers, and technology experts in solving collective challenges in their community. Such engagement can inspire new directives and policy changes while boosting community participation.

Similarly, the anticipated impacts come from the promising features of emerging solutions as judged by the juries. If adequately funded and implemented post-hackathon, the anticipated impacts could be realised. They include broader behavioural changes for sustainable lifestyles, greener environmental, and economic benefits, improved quality of urban living conditions, and policy and regulatory influence. For example, *FoodConnect* and *CityShare* hope to reduce consumer food waste by up to 30%, extend product lifespan, reduce wastage associated with personal items, lower carbon footprint, reduce urban congestion, and optimise urban resources. The *Offtime* solution estimated that with 10,000 users, each completing one challenge a day for one year, the city could save 14,000 KWH weekly, 728,000 KWH yearly, and power 182 homes in Finland for one year.

Citizen participation dynamics

The citizens' participation is diverse, cutting across genders and multiple nationalities. Their participation is not passive but dynamic as it evolves with issues being addressed and citizens' interests and priorities. As such, the form of engagement varies, with participants willingly participating without coercion to ensure that the goals are achieved, ensuring inclusivity and relevance in bringing lasting impact to the community. The participants significantly demonstrated the concept of *willing-participation* and *seeking-participation*. The engagement includes oral interactions, interviews, surveys, hackathon attendance, and field testing to co-identify, prioritise, and provide relevant inputs. It is worth mentioning that some citizens actively participated in the pre-hack phase but were not available to complete the participation circle in

the post-hack phase (field test/evaluation). However, such an occurrence had little impact on the event's outcome.

Discussion

With the support of the municipals, research institutions, and other partners, the SustHack model empowers student teams (with relevant skills) and citizens to participate voluntarily in solving sustainability issues in their community. The model builds on the urban living lab to create sustainability awareness, co-identify, and co-design for sustainable urban development. Organising hackathons offers solutions for changing citizens' behaviour in energy consumption, waste management, water conservation, and urban mobility. The citizens play an important role in providing ideas, validating them, and subsequently using the solution. Therefore, SustHack is a good starting point in designing with and empowering citizens to take full ownership of their activities and their environmental effects.

From several SustHack hackathons, the authors observed that many participants supported citizen inclusion in the ideation and prototype evaluation processes. The emphasis on citizen participation pushed the student teams (developers and designers) to seek feedback from citizens and interact with interested citizens and stakeholders. Many teams shared their appreciation for the input provided by the participating stakeholders as it brought a new perspective to the design and helped to resolve ambiguity between requirement and prototype. The commitment to understanding how the challenges affect the local community through the lens of the citizens helped to discover new paths in modifying and creating a suitable solution. Such involvements come with challenges, including a slow start for first-time hackathon participants, fear of rejection that targeted citizens may be too busy and unwilling to participate in co-design processes, and over-confidence, believing that their technical idea only can represent the concerns of the majority.

Furthermore, the SustHack model provides a new approach to environmental and urban problem-solving, partnership, innovation development, and entrepreneurial skills, which emphasises designing with citizens to strengthen greener and socially sustainable drives of the Nordics across the SDGs, especially Goal 11, sustainable cities and communities. All in all, the feedback from the SustHack hackathon series has been positive. The engagements with stakeholders were valuable new experiences for many, and they confirmed that such factors would help solve many of the emerging socio-environmental challenges affecting urban development. While it is impossible to immediately justify the quantifiable long-term effect, SustHack participants have indicated that the hackathon and exposure improved their understanding of sustainability and responsibility to a safer environment.

Rather than forcing governance and innovation mainly from the top-down, this chapter argues for a blended approach, where citizens from the bottom-up

are considered techno-social innovation sources and middle-out actors. The model brings valuable insights towards achieving sustainable urban development by connecting the five dimensions of sustainability: economic, social, individual, technological, and environmental progress. When fully implemented, the anticipated impact is seen through the developed solutions that offer promising outcomes for tackling local sustainability issues. Despite the great potential of the SustHack approach to citizens' participation in co-creating sustainable urban development, it comes with key challenges, which include short timeframes, participant recruitment and their commitment to post-hackathon engagement, refinement, and scalability of prototype to outlive the hackathon, post-hackathon funding, and support for real-life implementation and long-lasting impacts.

This chapter highlights the strength of the SustHack model in bridging the entry barriers to innovation for citizens by complementing the urban living labs methodology, wherein solutions from hackathons could be sustained further. The chapter recommends that beyond providing the necessary funds and resources for the hackathon, relevant municipal agencies and industry partners must build a community of experts post-hackathon phase to evaluate and refine the prototype for city-wide implementation to create long-term positive impacts on the urban environment. Such a post-hackathon community, as suggested by [Briscoe and Mulligan \(2014\)](#), is the most resourceful output of a hackathon approach for sustainability.

Future research can apply the SustHack approach to different urban sustainability challenges, focusing on long-term impacts and the scalability of hackathon solutions. Further studies could also investigate the role of inclusivity and engagement depth in sustaining citizen participation and effective partnerships with municipalities. Finally, evaluating the perceived effect of building a community of experts after the hackathon event could inform best practices in socio-technical pathways for urban sustainability initiatives. Several researchers have highlighted the failure to realise post-hackathon benefits due to mainly being pushed by the participating developers/designers ([Adisa et al., 2023](#); [Kamariotou & Kitsios, 2022](#); [Nolte et al., 2020](#)) as against having a long-term post-hack community and implementation strategies sponsored by government agencies, academic institutions, industry partners, or investors. Such a strategy could make the solutions co-created to have a long-lasting and broader societal impact.

Implications for practice and policy

Implications for practice

The SustHack model is built on stakeholders' engagement and offers a new approach to solving socio-environmental problems by strengthening

the Nordics' greener and socially sustainable drives across the SDGs. The model acknowledges that collaborating with diverse stakeholders is indeed intensive and challenging. In response, it proposes that municipalities develop a culture of '*willing-participatory*,' '*seeking-participatory*,' and '*developing-participatory*' to enhance stakeholder engagement in sustainable urban activities. The SustHack model makes citizens' participation necessary to empower participants as change agents to promote awareness of sustainable actions across the municipals. It creates opportunities for the inclusiveness of citizens, researchers, and businesses to lend their voices and resources to projects and initiatives that benefit their community.

Unlike the general hackathons, the SustHack model strives to reduce entry barriers to urban living labs by closely connecting with citizens' challenges and expectations on how innovative urban solutions impact their everyday activities. Such participation can be on-premises or virtual, wherein open data are utilised to pool knowledge, expertise, and resources to generate valuable insight for urban well-being. Beyond initial funding, Municipalities and relevant partners need to build a community of experts on post-hackathon engagement to re-evaluate and support promising prototypes for city-wide implementation for better and long-term socio-environmental impacts.

Implications for policy

This study argued that rather than pushing innovation for urban development as a mainly top-down where technological innovation is being imposed on citizens or a bottom-up approach where activities are being led primarily by the citizens, such a one-size-fits-all is incapable of addressing the urgent and inclusive needs of today's urban development. The SustHack model offers a blended approach that builds on the benefits of top-down and bottom-up approaches to increase civic participation and community-led actions in the race to sustainable urban development. Through the model, citizens can work with researchers, software developers, and industries to co-innovate for sustainable urban development.

The SustHack model can be employed in different urban sustainability contexts and in promoting citizen-centred policy integration and innovation strategies at the local or regional level to guarantee effective technologies-induced citizen participation, wherein citizens are considered co-creators, co-testers, end-users, and sustainability ambassadors. Furthermore, it offers policymakers a platform to harmonise and discover new skills, knowledge, resources, and innovative thinking to strengthen urban living labs from both top-down and bottom-up stakeholders to achieve a thriving and inclusive urban city.

References

- Adisa, M. O., Oyedeji, S., Abdullai, L., Porras, J., & Lau, S. L. (2023). SustHack: A hackathon approach for engaging citizens and fostering a sustainability mindset. *Annual Symposium for Computer Science, 3506*, 116–127.
- Adisa, M. O., Oyedeji, S., & Porras, J. (2024). The nexus between ICT, top-down and bottom-up approaches for sustainability activities: A systematic mapping study. *Journal of Cleaner Production, 449*, 141768.
- Akterujjaman, S. M., Mulder, R., & Kievit, H. (2022). The influence of strategic orientation on co-creation in smart city projects: Enjoy the benefits of collaboration. *International Journal of Construction Management, 22*(9), 1597–1605.
- Anthony, B. (2023). The role of community engagement in urban innovation towards the co-creation of smart sustainable cities. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-023-01176-1>
- AVP. (2024). *Solve the SDGs*. Aalto Ventures Program. Retrieved January 10, 2024, from <https://avp.aalto.fi/solve-the-sdgs/>
- Briscoe, G., & Mulligan, C. (2014). Digital innovation: The hackathon phenomenon. *Creativeworks London Working Paper*.
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology, 11*(1), 100.
- Götzen, A., Simeone, L., Saad-Sulonen, J., Becermen, B., & Morelli, N. (2020). The hackathon format: An analysis of its possible interpretations under a service design perspective. *Balancing Innovation and Operation. Proceedings of NordDesign 2020*.
- Franco, S., Presenza, A., & Petruzzelli, A. M. (2021). Boosting innovative business ideas through hackathons. The “Hack for Travel” case study. *European Journal of Innovation Management, 25*(6), 413–431.
- Heller, B., Amir, A., Waxman, R., & Maaravi, Y. (2023). Hack your organizational innovation: Literature review and integrative model for running hackathons. *Journal of Innovation and Entrepreneurship, 12*(1), 6.
- Johnson, P., & Robinson, P. (2014). Civic hackathons: Innovation, procurement, or civic engagement? *Review of Policy Research, 31*(4), 349–357.
- Kamariotou, M., & Kitsios, F. (2022). Hackathons for driving service innovation strategies: The evolution of a digital platform-based ecosystem. *Journal of Open Innovation: Technology, Market, and Complexity, 8*(3), 111.
- Lee, J., Babcock, J., Pham, T. S., Bui, T. H., & Kang, M. (2023). Smart city as a social transition towards inclusive development through technology: A tale of four smart cities. *International Journal of Urban Sciences, 27*(sup1), 75–100. <https://doi.org/10.1080/12265934.2022.2074076>
- Leminen, S., Westerlund, M., & Nyström, A.-G. (2012). Living labs as open-innovation networks. *Technology Innovation Management Review, 2*, 6–11.
- Mee, A., Lyes, M., & Crowe, P. (2021). Energy urbanity and active citizen participation. *Energies, 14*(20), Article 20. <https://doi.org/10.3390/en14206515>
- Nolte, A., Chounta, I.-A., & Herbsleb, J. D. (2020). What happens to all these hackathon projects? Identifying factors to promote hackathon project continuation. *Proceedings of the ACM on Human-Computer Interaction, 4*(CSCW2), 145:1–145:26.
- Perng, S.-Y., Kitchin, R., & Mac Donncha, D. (2018). Hackathons, entrepreneurial life and the making of smart cities. *Geoforum, 97*, 189–197.
- Pogačar, K., & Žižek, A. (2016). Urban hackathon – Alternative information based and participatory approach to urban development. *Procedia Engineering, 161*, 1971–1976.
- Porras, J., Happonen, A., Knutas, A., Khakurel, J., Ikonen, J., & Herala, A. (2019). Code camps and hackathons in education—Literature review and lessons learned.

- Proceedings of the Annual Hawaii International Conference on System Sciences, 2019-January*, 7750–7759.
- Porras, J., Khakurel, J., Ikonen, J., Happonen, A., Knutas, A., Herala, A., & Drögehorn, O. (2018). Hackathons in software engineering education. *Proceedings of the 2nd International Workshop on Software Engineering Education for Millennials*.
- Shiramatsu, S., Tossavainen, T., Ozono, T., & Shintani, T. (2015). Towards continuous collaboration on civic tech projects: Use cases of a goal sharing system based on linked open data. In *Electronic participation* (pp. 81–92). Springer International Publishing.
- Steen, K., & van Bueren, E. (2017). The defining characteristics of urban living labs. *Technology Innovation Management Review*, 7(7).
- Trischler, J., Svensson, P. O., Williams, H., & Wikström, F. (2023). Citizens as an innovation source in sustainability transitions – Linking the directionality of innovations with the locus of the problem in transformative innovation policy. *Public Management Review*, 25(11), 2093–2115.
- World Bank. (2023). *Urban development*. World Bank. <https://www.worldbank.org/en/topic/urbandevelopment/overview>
- Zapico, J. L., Pargman, D., Ebner, H., & Eriksson, E. (2013). Hacking sustainability: Broadening participation through Green Hackathons. *Fourth International Symposium on End-User Development*.

8

POSSIBILITIES FOR DEMOCRATIC EQUALITY?

Participatory budgeting as a question of municipal resources

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Introduction

For decades, participatory budgeting (PB), in which citizens are invited to participatory procedures of allocating public funds, has been globally implemented in different contexts and ways (Sintomer et al., 2008). Municipalities have played a key role in adopting PB as a democratic participatory tool. From them, the promise of PB lies in its potential for developing local governing practices, such as enhancing citizens' roles in decision-making; ultimately, this is believed to improve the organisation of public services (Sintomer et al., 2008). PB is also used to increase opportunities for citizens to influence decision-making concerning their living environments. This is a foundation for equal and democratic governance and community empowerment as focal elements of social sustainability (Rogers et al., 2012). Therefore, PB can be a possible mean of developing governance and improving democracy in an era of public mistrust in governments (Kuenneke & Scutelnicu, 2021). However, research has shown that the outcomes of PB's participatory exercises largely depend on the diversity of participants (Jaramillo & Alcázar, 2013). McNulty (2015) has argued that to be successful, participatory processes should include those who have been excluded from mainstream political life due to gender, economics or race. PB has been acknowledged as a potential political space, for example, for senior citizens, indigenous groups and the LGBTQ+ community (Hernández-Medina, 2010).

Inclusivity and equality have been frequently discussed in PB studies. These studies have mainly scrutinised *who participates* and *how* they participate. Less attention has been devoted to the question of inclusivity and equality of PB based on the *differences between organisations*, such as municipalities, *and their resources*. However, this is an essential issue concerning the

possibilities of municipalities to provide different participation channels. We argue that there are significant differences between organisations, particularly municipalities, in how well they are resourced and how broadly they can offer different kinds of participation channels for their citizens. We consider this as a fundamental question of inclusivity and democratic equality of participation. Hence, the chapter moves beyond studying the diversity of PB participants to analyse how organisational conditions, particularly resources, may influence the equality of PB and even the possibilities to use PB in municipalities.

This chapter approaches local adoption of PB from the perspective of municipal resources as a question of democratic equality. Our aim is twofold. Firstly, the chapter aims to identify the organisational resources required to organise PB. Secondly, as a wider question on participatory democracy, this chapter combines organisational resources with democratic equality, i.e. organisations' provision of equal opportunities for citizens to take part in PB. We ask (1) *what is needed to resource PB in municipal organisations*, and (2) *how do municipal resources enable or limit the possibility of providing an equal and democratic process of PB for citizens?*

The resource perspective is understudied, even though planning and implementing PB requires a variety of resources. Moreover, the impact of organisational resources on equal opportunities for citizen participation has gained less attention. In contrast to the wide range of studies concentrating on equal participation opportunities for different citizen groups in municipalities or communities (e.g. Hernández-Medina, 2010; Kuenneke & Scutelnicu, 2021; McNulty, 2015), there is a lack of research on the equality of participation possibilities between different municipalities depending on the available resources of each municipality. To fill this research gap, this chapter adds new knowledge on the crucial role of resources in whether and to what extent municipalities can implement democratic innovations, such as PB, and how this is related to democratic equality and social sustainability. The chapter builds upon empirical data from interviews and focus group discussions on two local PB processes: Helsinki and Tampere. It takes an organisational viewpoint on PB; thus, the data are gathered from civil servants who organise and implement PB in their daily work.

The chapter starts by discussing resources in previous PB research, followed by the presentation of the empirical context, cases, data and methods. In the analysis, we identify different types of resources and investigate their influences on PB. To conclude, the chapter argues that more attention should be paid to the resource intensity of democratic innovations to understand and develop possibilities for democratic equality and social sustainability.

Taking a resource perspective on PB

In public administration, the concept of resource is not often very clear and, at the same time, it is very situational. Aside with budgets, for example, human

resources as ensuring adequate workforce, supporting employees' professional development and working conditions, can be seen as key resource for public organisation (see [Brown, 2004](#)). Also, knowledge can be seen as valuable resource for organisations ([Leitner & Warden, 2004](#)). In citizen participation processes, sufficient organisational knowledge concerning citizen participation is needed, and for human resources, this could mean educating the personnel and professionals ([Yang & Pandey, 2011](#)).

Public administration resources play an important role also in processes of citizen participation as the organisation of participation is generally considered complex, time-consuming and costly ([Sørensen & Bentzen, 2020](#)). Better on-the-ground results might be produced if resources for participation were spent elsewhere ([Irvin & Stansbury, 2004](#)). Organisational resources that are required, and seen focal, for citizen participation, such as working time or specific competencies of the personnel, are not always sufficiently recognised, planned or allocated, which challenges the implementation of citizen participation ([Kurkela et al., 2023](#)). Yet, despite the importance of resources is acknowledged within citizen participation practitioners, the deeper academic understanding concerning the role of different resources in PB is lacking. We argue that the question of resources in the PB context is central and needs scholarly attention.

In earlier PB studies, resources have been approached relatively seldom. They have been discussed, for example, as a *question of allocation* by focusing on the distribution of PB funds ([Cabannes, 2004](#); [Shybalkina & Bifulco, 2019](#)). [Calabrese et al. \(2020\)](#) discovered that PB does not reduce officials' power in allocating public finances; it only alters the methods of public spending. [Ewens and van der Voet \(2019\)](#) employed the view of *organisational structures*—one example of organisational resources—by looking at the relationships between these structures and the adoption of PB. They noticed that organisational size had no statistical significance and argued that, rather than the number of people in an organisation, it is the functional expert knowledge of those people that influences the adoption of PB. [Ebdon and Franklin \(2006\)](#) investigated PB's participatory mechanisms, such as focus groups and public hearings, by observing the *administrative requirements* of these mechanisms and the participation they enable. They addressed the differences, such as whether the mechanisms give citizens direct influence or whether they are mostly used for preliminary information sharing. From the resource viewpoint, their study provides knowledge about the organisation of budget participation, such as how much investment a particular participatory mechanism requires from an organisation.

In previous PB studies, *equality* has been studied but not very widely. For example, [Kuenneke and Scutelnicu \(2021\)](#) studied how PB promoted social equity in different city council districts. [Su \(2017\)](#) approached PB from the perspective of critical race theory and racial hierarchies, and [McNulty \(2015\)](#)

studied the diversity of participation by gender in Peru's PB process. In the context of social sustainability, [Sinervo et al. \(2024\)](#) highlight that prior PB studies have scrutinised the viewpoints of citizen empowerment, opening of political space for new groups, communication and civic learning and social well-being impacts. These perspectives of equality are important to study, especially in the era of democracy crises and in the case of PB, which is rooted in the inclusion of silent voices. Furthermore, in this chapter, we argue that distinguishing the connection of organisational conditions, such as resources, to the equality of PB processes is necessary.

Empirical context of the study

In Finland, interest in PB has increased in recent years, as local politicians have promoted PB as part of local government activities ([Lehtonen, 2021](#)). One reason behind this is an amendment in the Local Government Act (LGA 410/2015) that specifies 'arranging opportunities to participate in the planning of the municipality's finances' as one possible option for participation. While Local Government Act does not state that participation *should* be enabled through PB, this has been the common interpretation in Finnish local government.

At the same time, Finnish municipalities struggle to solve the conundrum of providing high-quality welfare services at lower costs as numerous service requirements have burdened municipalities ([Vakkala et al., 2021](#)). This surplus of municipal tasks has not been accompanied by a corresponding level of financial resources provided by the central government ([Sinervo, 2014](#)). This has created a structural imbalance between service responsibilities and financial resources. This imbalance—and thus the inadequacy of financial resources—has forced municipalities to raise tax rates and increase borrowing.

As part of the Nordic welfare system and with municipalities struggling with their finances and service demands, Finland provides an fruitful setting to investigate how participation, especially PB, is locally resourced. We scrutinised the resourcing of PB in two Finnish cities: Helsinki, the capital of Finland (appr. 665,000 inhabitants), and Tampere, the third-largest city in Finland (appr. 250,000 inhabitants) ([Table 8.1](#)). In Finland, Helsinki is considered the flagship of the Finnish PB scene, with vast organisational and financial resources. PB is one of the participatory mechanisms in the city of Helsinki. Other mechanisms utilised in Helsinki are, for example, residents' events, resident or client panels and local residents' initiatives. Tampere first piloted PB in 2014 at the neighbourhood level and subsequently organised a city-level PB.

In Helsinki, the first round of PB at the city level was organised in 2018–2019 with a budget of 4.4 million euros (the total operational expenditure of Helsinki was 5.5 billion euros in 2018). The city district population size

TABLE 8.1 PBs in Helsinki and Tampere

	<i>Helsinki PB 'OmaStadi' 2018–2019</i>	<i>Tampere PB 'Mun Tampere' 2020</i>
	<i>4,4 million euros (appr. 7 euros/citizen)</i>	<i>450,000 euros (appr. 2 euros/citizen)</i>
Idea creation	<ul style="list-style-type: none"> • Citizens' proposals on any theme • Preliminary feasibility evaluation by civil servants • 1,273 submitted proposals of which 839 deemed actionable 	<ul style="list-style-type: none"> • Citizens' proposals on youth well-being • Feasibility evaluation by civil servants • 380 submitted proposals of which 227 deemed actionable proposals
Co-creation	<ul style="list-style-type: none"> • Further development of proposals by civil servants and citizens 	<ul style="list-style-type: none"> • Further development of proposals by civil servants and citizens
Cost evaluation	<ul style="list-style-type: none"> • Cost evaluation of co-created proposals • 296 proposals proceeded to the voting 	<ul style="list-style-type: none"> • Cost evaluation by civil servants • 120 proposals published for voting
Voting	<ul style="list-style-type: none"> • Voting (age limit 12 years) on the co-created and cost-evaluated proposals • 49,705 submitted votes 	<ul style="list-style-type: none"> • Voting (age limit 12 years) on the co-created and cost-evaluated proposals • 2,927 voters
Implementation	<ul style="list-style-type: none"> • 44 proposals for implementation 	<ul style="list-style-type: none"> • 12 proposals for implementation

determined the budget of each district. Nationally, the PB in Helsinki, called *OmaStadi* (loose translation: My own Helsinki), has been the most resourced in terms of staff and the amount of allocated funds. In Tampere, the first city-wide PB, called *Mun Tampere* (loose translation: My Tampere), was organised in 2020 with a budget of 450,000 euros (the total operational expenditure of Tampere was 1.6 billion euros in 2018). The PB was thematically framed to improve the well-being of young people. [Table 8.1](#) describes the PB processes in Helsinki and Tampere.

Data and methods

The PB processes in Helsinki and Tampere offer interesting cases as they are quite well-resourced for example from the viewpoint of personnel working in these processes. As multiple persons took part in the organisation of PBs, we were able to gather illustrative data, offering diverse viewpoints to the questions of resources. The empirical data were collected from 2019 to 2021

in two independent research projects (further information anonymised). This offered us an interesting opportunity to gather data, as both cities were first-timers in organising city-wide PB processes. The insights of their first city-wide rounds offer valuable understanding from the viewpoint of resources when the resource needs are at highest without prior experiences or knowledge. Instead of comparative study, we provide rich empirical data by combining insights from these cases (see Yin, 2009).

The primary data include interviews and focus group discussions of key PB actors. In Helsinki, three key actors were individually interviewed, and a focus group of six key people was assembled. In Tampere, 8 individual interviews were conducted with civil servants who were involved in PB, while 11 group interviews with the *My Tampere* team (three to four participants) were conducted. We used secondary data consisting of documents of the planning, implementation and outcomes of the PB processes (e.g. the City of Helsinki's Participation and Interaction Model; Helsinki City Council's Decision on the Implementation and Financing of Its Participation Model, 13 November 2017; Assessment Report on the Participation and Interaction Model of Helsinki; Assessment Report on the My Tampere PB process; the City of Tampere's Participation and Interaction Model) to gain background information.

This chapter draws on the case study approach as it analyses the details of these cases. We recognise that the cases have their own particularities, but they share similar questions. In inductive data analysis (Elo & Kyngäs, 2008), we identify and illustrate resources needed for planning and implementing PB. Firstly, we analyse the data by distinguishing the situations in which informants talked about essential issues in implementing PB. Secondly, from these data, we searched for moments that focused on the resources of PB. Thirdly, we grouped the identified resources into four thematic categories, which are presented and illustrated in the next section.

Identifying resources needed for socially sustainable PB

We identify four categories of resources needed for implementing PB: (1) financial resources, (2) human resources, (3) knowledge resources and expertise and (4) technological and material resources. This section deepens the understanding of the resource intensity of PB through these categories.

Financial resources

Financial resources allocated for the PB include not only the sum that citizens will decide about but also the resources needed to organise the process (e.g. communication, services and salary costs). These resources

are closely connected to and typically explained by the overall financial position of the city. Helsinki's financial position is rather solid and quite exceptional in Finland, with remarkable surpluses accumulated on financial statements, resulting in considerations for reduced tax rates. The city has a strong revenue base. The mobility of people and businesses in Helsinki secures advantageous financial conditions for the city (City of Helsinki, 2020). Tampere is a growing and attractive city, but it is struggling with inadequate financial resources. Tampere has a strategy for large investments, which has increased the level of loans. The city has started austerity policies to balance the economy, meaning budget cuts and increasing tax rates (City of Tampere, 2020).

In the first round of city-wide PB in Helsinki in 2018, a budget of 4.4 million euros was funded from a former 'suburb fund' that was transformed into a 'participation fund'. The total costs of the PB were much higher than 4.4 million euros as it included salaries of the PB experts, along with communication, software and service costs. The administrative costs were embedded in the city's normal operational costs without any pre-assessment. Compared to other Finnish municipalities' PB budgets, Helsinki's budget is clearly the largest. This was made possible due to strong political will and support:

I am astonished how easily the decision was made. We gave a lot value for the participation and influencing possibilities of the residents as an essential part of this larger management system reform. ... We had quite adventurous and innovative politicians to make such a decision.

(Member of the Citizen Participation Management Team)

In Tampere, PB funding was included in the city's annual budget. The original plan was to allocate 600,000 euros to PB, but the city council reduced the sum to 500,000 euros due to changes in the city's general budget. The amount was further reduced by 50,000 euros for the administrative costs of PB. Thus, inhabitants decided on the use of 450,000 euros.

Resourcing PB financially necessitates political and strategic will at the city level; additionally, thorough planning of the distribution of PB funding is also required at the district level. In Tampere, the PB staff developed a model for the equal distribution of PB funds. In the model, the city was divided into five districts that were evenly assigned 70,000 euros each for district-level proposals. An additional 100,000 euros was allocated for city-wide proposals. The PB budget in Helsinki was divided among seven districts based on their population size. Overall, 80% of the budget was divided into districts, and 20% was used for city-wide proposals.

Both cases illustrate that the PB's financial resources were not solely limited to the direct implementation of PB proposals. The PB demanded a lot of

work resources from cities' different service units and caused future maintenance costs:

We opened discussion[s] in the executive board of these maintenance costs in terms of PB and our other annual development programmes. If there is something that needs to be built or repaired as a result of PB, or investments that cause expenses in coming years, we started to discuss how to cover those costs.

(Member of the My Tampere Team)

Human resources

Human resources are crucial, from the early planning of PB to the evaluation of submitted proposals, calculating the costs of projects, implementing the winning projects and facilitating and supporting the participation of citizens during the PB.

In both of our cases, the cities appointed PB staff to take care of the process. The linkage between the PB staff and other experts from the cities' service units turned out to be an essential resource in proceeding with PB. In Tampere, the PB staff consisted of a 'My Tampere' team (three to four civil servants) responsible for planning and organising the process. The team worked in cooperation with a working group of 15 members from the city's different service areas. A group of over 40 civil servants in service areas worked as pre-examiners, evaluating the feasibility of the submitted proposals. Tampere had also an executive PB board that provided support and an arena for discussing and approving the overall design and principles of the process. In Helsinki, the PB staff consisted of ten civil servants who organised the PB process in collaboration with other experts from the city organisation. Additionally, numerous civil servants in service areas evaluated the proposals. Helsinki also had an advisory board for participation and interaction led by the mayor.

During the process, difficulties occurred in balancing human resources with the workload of PB. In Helsinki, the city succeeded in encouraging wide participation but was not sufficiently prepared for the flood of ideas (1,273 proposals). This challenged the city's experts, as all the ideas needed to be evaluated and their costs estimated. PB required significantly more work time than expected. Initially, it was estimated that the seven borough liaisons of the PB team would dedicate 25% of their working hours for PB, but during the first round, they used 70–80% of their working hours for PB:

I have been thinking over whether I am doing the work that we have promised for the residents. And then I started to do that, but then I noticed that it is too much work because participatory budgeting is of course a really important thing, and it is understandable that it is the one that we put our effort into.

(Member of the Borough Liaison Team)

Service areas carried the major responsibility of directing their staff's worktime to the process. In Tampere, it was estimated that, on top of 40 pre-examiners, approximately 100 civil servants were involved in the whole PB implementation process:

There really is a lot to do. From so many different perspectives, communication and cost estimates. Overall, establishing cooperation with all the different actors. The IT side and the internal partners and outsiders and system providers and who knows who else... There's a huge crowd of people involved, and coordinating the whole thing is another issue altogether.

(Member of the My Tampere Team)

In Helsinki, as 70% of the ideas concerned the city environment and planning, this service area was particularly overloaded with work without sufficient resources. This caused stress, frustration, impatience and led to negative attitudes towards PB among some civil servants. The resource intensity led to changes in Helsinki's PB process. Initially, the idea was to perform the process every year, but the cycle is now biennial, and the process is shorter. Tampere has also been favouring targeted, smaller-scale PBs focusing on particular topic.

One of the key challenges concerning the PB process in both our cases was the amount of extra work, especially during the pre-examination and the cost-estimation phases. Thus, cooperation, coordination and division of labour between different units during the PB process was seen highly important.

Knowledge resources and expertise

PB challenges the traditional role of professionals and poses needs for new skills. In the analysis, we distinguished several areas of expertise required for PB. *Expertise in substance* was required in pre-examining the practical and financial feasibility of submitted. This required expertise in estimating possible future expenses as well.

PB requires *project and process management and development skills*. In Helsinki, the process required skills to deal with winding processes and stressed organisations' and personnel's ability to plan and implement PB:

This requires very good skills of tolerating incompleteness, uncertainty, and change resistance, and maybe also skills of project management.

(Member of the Citizen Participation Management Team)

Communication expertise is crucial in informing citizens about PB and supporting its promotion through various social media channels and mainstream local media. In Tampere, the PB staff promoted PB in over 130

Facebook groups. Expertise and *skills in face-to-face and online interactions* were highlighted.

Besides interaction skills, *expertise in the methods of facilitating interaction* was essential in organising PB workshops of developing project plans. Facilitating groupwork entailed expertise in encouraging deliberative discussion and creating safe and equal spaces. In Tampere, one of the workshops targeted young people, which necessitated skills to facilitate discussions with this age group and translate administrative language to be understandable.

Local knowledge of the city's neighbourhoods became essential in facilitating the workshops, reaching local key actors, collaborators and networks and supporting participants in developing proposals. The data also highlighted the *ability to organise intra-organisational cooperation between service areas and the central administration*. The tight schedule of assigning tasks to different organisational units and insufficient human resources challenged intra-organisational cooperation in both cities.

Technological and material resources

PB requires technological tools and services, material equipment and physical spaces. Both cities used the *Decidim* digital platform to collect the proposals and arrange the voting. In Helsinki, an expert was hired to develop the platform. It is noted that PB would benefit from more technological resources, such as coding resources. Much effort was put into the marketing of PB, such as social media and internet-based marketing, outdoor advertisements and a special PB supplement in the city's bulletin magazine.

Meeting citizens 'in the field' to talk about PB face-to-face in familiar, safe and neutral locations, such as local libraries, community houses or welfare centres, was considered important for mobilising people. As COVID-19 limited face-to-face interaction, extra effort was put into visual communication materials in public spaces, such as street banners.

In both cities, PB staff utilised technological and material resources to reach different participants, such as people with disabilities. Finnish and English were used in communication. Helsinki, as a bilingual city, had all its material available in Swedish as well. The main material and instructions were also available in Estonian, Russian, Somali and Arabi in Helsinki. Tampere provided information in (Finnish) sign language for people with hearing disabilities.

Resources and the equality of PB

This chapter has aimed to further the understanding of the resources in organising well-functioning PB by asking *what is needed to resource PB in municipal organisations*. We identified four kinds of organisational resources:

financial, human, knowledge and expert resources, as well as technological and material resources. Because of the novelty of PB in both of our cases, there might be further needs for resources in the forthcoming years. As PB is a mechanism that includes unexpected elements, it is not possible to know beforehand how citizens take part in it. PB may require more targeted marketing resources in the next rounds. The number of proposals may increase requiring more human resources to evaluate and develop the ideas. Moreover, the resource intensity may prevent the use of PB in municipalities, thus affecting the equal participation possibilities of citizens depending on their municipality's financial situation.

Even though it has been discussed whether PB helps reduce costs by increasing administrative efficacy (cf. Cabannes, 2004; Röcke, 2014), our study suggests that it actually requires a lot of resources, thus increasing the costs. Whether resources are used to institutionalise PB or implement it as a singular effort is important in terms of resource intensity as well as the sustainability of PB. The resource intensity described in this chapter sets limitations on where and how PB can be implemented, as it is highly dependent on municipalities' resources. The austerity of resources reveals the vulnerability of PB. In addition, experiences of uneven distribution of resources may cause contradictions between different service areas of the city. If there are not enough resources for estimating, co-creating and implementing the ideas, this may lead to conflicts and disbelief in the units leading PB. In addition, reluctance towards PB and citizen participation in general may increase (cf. Núñez, 2018; Kurkela et al., 2023).

This chapter also explored *how do municipal resources enable or limit the possibility of providing an equal and democratic process of PB for citizens*. By understanding the resourcing of PB in-depth, we contribute to the discussion of democratic equality and equal participation opportunities. These are essential features of social sustainability. Table 8.2 summarises tasks where resources in PB are needed. Firstly, resources can support the planning and implementation of an inclusive and equal PB process. Secondly, resources can help formulate a shared understanding of PB in organisations. Thirdly, resources play a role in developing the participatory elements of the PB process. However, from the viewpoint of social sustainability, (insufficient) resources may also form barriers to equality in PB.

We argue that, due to the imbalance and austerity in resources, municipalities are at risk of divergence concerning the provision of different participation channels and opportunities for citizenry. In practice, this could mean that citizens of less-resourced municipalities are at risk of having fewer democratic opportunities than citizens in well-resourced municipalities. We consider these divergence possibilities an issue of democratic equality and inclusivity and, thus, a question of social sustainability.

TABLE 8.2 PB Resources and Equality

<i>Aim</i>	<i>Resources needed</i>	<i>Barriers and enablers of equality</i>
Planning and implementing	<ul style="list-style-type: none"> • Division of work (tasks, responsibilities, assignments between units) • Planning the process • Marketing and advertising • Online platform design and maintenance • Pre-examination of the proposals and finding relevant experts for assessment • Cost calculation and feasibility assessment • Planning and executing of winning proposals • Evaluation and redevelopment of the whole process 	<ul style="list-style-type: none"> • The amount of resources to organise PB • Prioritisation of participatory tools • Political will for the implementation scale of PB (e.g. city-wide vs. small grants) • Financial constrains • Principles and criteria for the fund allocation (e.g. population size, even distribution by districts) • Division of responsibilities and work tasks within organisation
Building common understanding and supportive organisational culture	<ul style="list-style-type: none"> • Developing a shared vision on the role of PB • Enabling commitment in PB 	<ul style="list-style-type: none"> • Organisational commitment • Shared understanding of PB
Enhancing citizens' participation	<ul style="list-style-type: none"> • Tools, methods and material for wide participation (e.g. marginalised groups) • Facilitating proposals and co-creation • Tools for sharing a wider understanding on PB 	<ul style="list-style-type: none"> • Workload of participatory tools • Communication for inclusion of diverse population and language groups • Locations and times of PB events for inclusion of diverse population and language groups

The resource aspect is related to the cultural context of the PB. In the Nordic context specifically, as [Pereira and Figueira \(2022\)](#) put it, governing has become increasingly complex and specialised due to the many functions to be performed in a modern economy, especially under the premises of the welfare state. Our research findings indicate that the increased duties and responsibilities of municipalities are accompanied by growing demands for the administrative processes of engaging citizens.

We underline the connection of the availability of resources to the level of democratic equality. The underlying assumption is that as municipalities' programmes and commitments, such as PB, become more intricate and widespread, citizen participation becomes increasingly challenging not only in

terms of the capacities required from citizens to participate but also in terms of how municipalities allocate resources for these processes. This questions whether the resource intensity of PB challenges its potential for equal and inclusive democratic participation and whether this issue is of particular importance in Nordic countries, where the welfare state context highlights the importance of strong administration and extensive responsibilities (see [Haveri, 2015](#)).

Implications for practice and policy

This chapter emphasises the importance of organisational resources as either enabling or hindering elements of democratic equality and social sustainability and recognises the role of municipal resources as inevitably connected to the possibilities of implementing PB—or other democratic innovations. The resources, that a municipality has for developing inclusive PB, must be taken into consideration. As municipalities struggle with limited resources, they are at risk of divergence concerning the opportunities of participation for citizens. There is a need to critically reflect PB's potential as a democratic innovation. This is especially important in countries with strong incentives or even an obligation to organise PB. Resource concerns may be highlighted in Nordic countries, such as Finland, where municipalities have wide and highly regulated responsibilities. Widely regulated administrative procedures may cause a situation in which PB heavily burdens the municipal organisation.

We find that the question of resources is not always well-recognised or considered beforehand. When the variety of resources that PB requires is recognised, it is easier to prepare and re-allocate resources accordingly. Furthermore, this is important in deciding whether to conduct PB or some other participation mechanism.

We call for future studies on the resources of PB in other countries with different administrative cultures and studies on the availability of PB and other democratic innovations in municipalities struggling with their financial situation: Do municipalities with scarce resources give up with or avoid PB or other resource-intensive participation methods? There is also a need to evaluate the resource intensity of different democratic innovations and to address the interconnections between municipal resources and democratic equality as an essential aspect of social sustainability.

References

- Brown, K. (2004). Human resource management in the public sector. *Public Management Review*, 6(3), 303–309.
- Cabannes, Y. (2004). Participatory budgeting: A significant contribution to participatory democracy. *Environment and Urbanization*, 16(1), 27–46.

- Calabrese, T., Williams, D., & Gupta, A. (2020). Does participatory budgeting alter public spending? Evidence from New York City. *Administration & Society*, 52(9), 1382–1409.
- City of Helsinki. (2020). *Financial Statement 2019*. Accessed April 27, 2021. <https://www.hel.fi/static/kanslia/julkaisut/2020/Tilinpaatos-2019.pdf>
- City of Tampere. (2020). *Financial Statement 2019*. Accessed April 27, 2021. https://www.tampere.fi/tiedostot/0031XHcAN/Tilinpaatos_2019_final_allekirjoitettu.pdf
- Ebdon, C., & Franklin, A. L. (2006). Citizen participation in budgeting theory. *Public Administration Review*, 66(3), 437–447.
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115.
- Ewens, H., & van der Voet, J. (2019). Organizational complexity and participatory innovation: Participatory budgeting in local government. *Public Management Review*, 21(12), 1848–1866.
- Haveri, A. (2015). Nordic local government: A success story, but will it last? *International Journal of Public Sector Management*, 28(2), 136–149.
- Hernández-Medina, E. (2010). Social inclusion through participation: The case of the participatory budget in São Paulo. *International Journal of Urban and Regional Research*, 34(3), 512–532.
- Irvin, R., & Stansbury, J. (2004). Citizen participation in decision making: Is it worth the effort? *Public Administration Review*, 64(1), 55–65.
- Jaramillo, M., & Alcázar, L. (2013). *Does participatory budgeting have an effect on the quality of public water services? The case of Peru's water and sanitation sector*. Inter-American Development Bank.
- Kueneke, A., & Scutelnicu, G. (2021). How successful is participatory budgeting in promoting social equity? Evidence from New York city. *Public Administration Quarterly*, 45(4), 370–391.
- Kurkela, K., Kork, A. A., Jäntti, A., & Paananen, H. (2023). Citizen participation as an organisational challenge in local government. *International Journal of Public Sector Management*, 37(1), 124–140.
- Lehtonen, P. (2021). Policy on the move: The enabling settings of participation in participatory budgeting. *Policy Studies*, 43(5), 1036–1054.
- Leitner, K. H., & Warden, C. (2004). Managing and reporting knowledge-based resources and processes in research organisations: Specifics, lessons learned and perspectives. *Management Accounting Research*, 15(1), 33–51.
- McNulty, S. L. (2015). Barriers to participation: Exploring gender in Peru's participatory budgeting process. *The Journal of Development Studies*, 51(11), 1429–1443.
- Núñez, T. (2018). Porto Alegre, from a role model to a crisis. In N. Dias (Ed.), *Hope for democracy. 30 years of participatory budgeting worldwide* (pp. 517–537). Oficina.
- Pereira, D., & Figueira, A. R. (2022). Rationales and barriers to citizen participation in public budgeting: A systematic literature review. *Revista Brasileira de Ciência Política*, 39, e258470.
- Röcke, A. (2014). *Framing citizen participation: Participatory budgeting in France, Germany and the United Kingdom*. Palgrave Macmillan.
- Rogers, D. S., Duraiappah, A. K., Antons, D. C., Munoz, P., Bai, X., Fragkias, M., & Gutscher, H. (2012). A vision for human well-being: Transition to social sustainability. *Current Opinion in Environmental Sustainability*, 4(1), 61–73.
- Shybalkina, I., & Bifulco, R. (2019). Does participatory budgeting change the share of public funding to low income neighborhoods? Participatory budgeting and the distribution of resources. *Public Budgeting & Finance*, 39(1), 45–66.
- Sinervo, L.-M. (2014). Interpreting financial balance in local government: A case study from Finland. *Public Money & Management*, 34(2), 123–130.

- Sinervo, L.-M., Bartocci, L., Lehtonen, P., & Ebdon, C. (2024). Toward sustainable governance with participatory budgeting. *Journal of Public Budgeting, Accounting & Financial Management*, 36(1), 1–19.
- Sintomer, Y., Herzberg, C., & Röcke, A. (2008). Participatory budgeting in Europe: Potentials and challenges. *International Journal of Urban and Regional Research*, 32(1), 164–178.
- Sørensen, E., & Bentzen, T. (2020). Public administrators in interactive democracy: A multi-paradigmatic approach. *Local Government Studies*, 46(1), 139–162.
- Su, C. (2017). From Porto Alegre to New York City: Participatory budgeting and democracy. *New Political Science*, 39(1), 67–75.
- Vakkala, H., Jäntti, A., & Sinervo, L.-M. (2021). Redefining local self-government: Finnish municipalities seeking their essence. In T. Bergström, J. Franzke, S. Kuhlmann, & E. Wayenberg (Eds.), *The future of local self-government – European trends in autonomy, innovations and central-local relations*. Palgrave Macmillan.
- Yang, K., & Pandey, S. K. (2011). Further dissecting the black box of citizen participation: When does citizen involvement lead to good outcomes?. *Public Administration Review*, 71(6), 880–892.
- Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). Sage.

9

DESIGNING AN ENERGY COMMUNITY OPERATOR

Capabilities for citizen engagement in Nordic case studies

Jussi Valta and Emilene Leite

Introduction

Transitioning to a low-carbon economy requires substantial shifts in our current energy infrastructure. Previously, the energy system was characterised by top-down, highly centralised structures controlled by a limited number of corporate entities and dominated by large-scale fossil fuel-based power generation. However, renewable energy sources, such as solar photovoltaics, biogas plants and onshore wind, are characterised by their distributed nature enabling individuals, cooperatives, small businesses and local communities to invest in and benefit from energy production. The novelty is that this transition has empowered previously passive energy consumers to become “prosumers” (Envall & Rohracher, 2023), meaning they become active participants in the energy system by consuming and producing energy, although often they are not yet fully self-sufficient.

A promising strategy to facilitate this critical transformation is through collective action energy projects commonly referred to as energy communities (ECs). Envall and Rohracher (2023, p. 766) define an EC as a “gathering of individuals or organisations who cooperatively produce, manage, or share energy or energy-related services”. Recent research findings (see e.g. Envall & Rohracher, 2023; Shortall et al., 2022) suggest that energy-related behaviours are embedded within specific social and technological contexts. Hence, energy usage is intertwined with social practices that evolve alongside advancements in energy technologies (Devine-Wright, 2012). Therefore, EC initiatives may promote sustainable energy practices and cultivate a sense of ownership and responsibility of citizens towards the society in which they are embedded (Shortall et al., 2022). Moreover, collective action energy projects can promote

energy justice and energy democracy by ensuring fair access to clean energy resources and democratising the decision-making process in energy management. Also, the European Green Deal recognises the importance of collective action associated with energy use in the energy transition (European Commission, 2019), as it can provide consumers and the local community with the means to enhance their participation in energy markets.

In an urban context, deploying new infrastructure is always a challenge, and getting acceptance from citizens is crucial for it. To engage citizens in this transition, there need to be intermediaries, i.e. agents who connect incumbents and communities. In this perspective, we argue that an EC operator, a central actor initiating and facilitating the EC creation process, requires capabilities to accommodate and influence institutions, including norms, standards and tariffs. These capabilities link to institutional entrepreneurship literature (Pacheco et al., 2010). Successful EC creation also demands aligning stakeholder interests since the EC operator must manage public and private organisations with different interests and related regulations. These capabilities lay the foundation for citizen engagement, which requires its own distinct set of capabilities.

Despite ECs' increased importance in advancing the energy transition, limited research has studied the required capabilities of the EC operator (Gohari et al., 2024). Fina and Monsberger (2023) study EC's interactions with various stakeholders on a conceptual level. Through four case studies in Nordic countries, specifically in Finland and Sweden, this chapter aims to empirically address this critical gap by focusing on the following research question: *What capabilities do energy community operators need to align stakeholder interests, navigate regulatory framework, and engage citizens while creating ECs?* The cases and the chosen analytical framework emphasise that citizen engagement is dependent on being able to analyse and influence the nascent regulatory framework of ECs, as well as on the orchestration of related stakeholders so that the involved actors have aligned interests in the process. These cases were instrumental in showing that integrating citizens into the complex creation process of ECs has its challenges, and mostly, engagement processes include ideation and informing and oftentimes shared ownership.

The chapter proceeds as follows. Next, the theoretical context is presented linking the EC as an enabler of energy democracy and justice. Afterward, the required capabilities of an EC operator are discussed. Then, the method is introduced, followed by the four cases. Subsequently, we present our findings. The chapter ends with implications for research and practice.

Theoretical background

Energy communities enabling energy democracy and justice

Within EC initiatives, the idea of energy democracy recognises the increasing role of societal actors, such as prosumers, energy cooperatives and

not-for-profit organisations, in shaping the energy landscape. These actors, however, challenge the traditional top-down model of energy governance by promoting greater democratisation, community ownership and participation in decision-making processes related to energy production and consumption. Thus, energy democracy represents a paradigm shift towards a more inclusive, participatory and sustainable future, where communities have a voice in how energy is produced, distributed and consumed. Szulecki (2018) conceptualises energy democracy as an analytical and decision-making tool structured around three dimensions: popular sovereignty, participatory governance and civic ownership. A similar concept used in the literature on transition studies discusses energy justice. It is often divided into three elements: distributional justice, referring to fair allocation of costs and benefits; procedural justice, meaning inclusive participation in decision-making during planning; and recognition justice, referring to the participation and needs of marginalised communities in decision-making (Van Bommel & Höffken, 2021). The two concepts, energy democracy and energy justice, are quite similar, and the key difference is the failure of the energy democracy literature to engage with questions of energy poverty and distributional (in)justice as energy justice frameworks do (Osička et al., 2023).

An interesting aspect is that both energy democracy and energy justice narratives, in line with the EC, challenge neoliberal capitalist paradigms that have historically shaped energy transitions, advocating for community-oriented energy projects as alternatives (Van Veelen, 2018). While some scholars have emphasised that ECs can contribute to the democratisation of the energy system by accelerating community building, increasing citizen engagement in the transformation process, and shifting the ownership of energy resources to grassroots (Dall-Orsoletta et al., 2022), other scholars (see e.g. Angel, 2017) show that participation is usually limited to those in higher socio-economic groups.

Despite EC being seen as an opportunity for disadvantaged communities (Weinrub & Giancatarino, 2015), more research is necessary to understand the role of social, economic and political power in energy transition. In general terms, while EC projects represent collective action towards renewables, research on and knowledge about effective involvement and collective pro-environmental actions is still lacking (Kalkbrenner & Roosen, 2016). In this chapter, we fill this gap by examining capabilities and activities implemented by EC operators, focusing on citizen engagement.

Different contexts of energy communities in the Nordics

Nordic EC projects happen in various contexts ranging from eco-villages to co-owned wind power plants. In this chapter, we focus on place-based, urban initiatives related to apartment buildings and their governance structures, which include the housing association. These are called *taloyhtiö* in Finland

and *bostadsrättningen* and *samfällighet* in Sweden, where the latter refers to joint property units, like parking halls or roads (Magnusson, 2022). In typical retrofit projects, it is required that people owning the apartments accept the project and contribute to the financing. Democratic decision-making within a housing association can be difficult in some instances (Lukkarinen et al., 2023). Within greenfield projects, real estate investors, who may include citizens, need to agree on the EC model to be invested in. Even though the up-front investment in on-site energy assets arguably brings lower operational costs and a good image for the real estate (Leskinen et al., 2020), it needs acceptance from these upstream actors who aim to profit from the construction project.

In projects including multiple properties, finding collaborative structures requires extending housing association processes. Some structures may exist already, based on community-owned roads or shared building management, for example (Magnusson, 2022). In greenfield projects, such collaboration must be planned and agreed upon by upstream organisations. Municipalities can influence the creation of such multi-property collaborations in urban planning. In the most ambitious cases, municipalities seek to create Positive Energy Districts (PEDs), which are neighbourhoods that produce more energy than they consume. Table 9.1 summarises the differences in different contexts.

Crafting a new actor with new capabilities: the energy community operator

Some studies mention the need for a new kind of coordinating actor within the local energy context (Gohari et al., 2024; Scharnigg & Sareen, 2023). Some authors see that public actors could act as such an intermediary between citizens and the existing incumbents facilitating the change, whereas others see business potential there for new private entities. Local context, regulations and resources matter in how such an actor may be formed, yet several capabilities can be seen as crucial in any setting. Here, we follow

TABLE 9.1 Different EC Contexts and Challenges they Pose for the EC Operator

	<i>Single property</i>	<i>Multi-property</i>
Greenfield	<ul style="list-style-type: none"> • Acceptance from upstream organisations is emphasised 	<ul style="list-style-type: none"> • Acceptance from upstream organisations • Administratively more complex • Facilitator or municipal involvement
Renovation	<ul style="list-style-type: none"> • Acceptance from citizens 	<ul style="list-style-type: none"> • Acceptance from citizens • Facilitator needed • Administratively more complex

Source: Developed by the authors.

the work of Mahzouni (2019) and analyse citizen engagement capabilities in three layers: institutional, organisational and citizen.

Capability 1: Creation of supportive institutions for customer engagement

On the institutional level, EC operators need to participate in the creation of the EC concept for a wider audience. This includes essential actors in the vicinity of the EC, including regulators, network operators and financiers, who, on their behalf, create the conditions for ECs and their members. Vernay and Sebi (2020) divide activities on this level into lobbying, networking financing and operational/technical support. Lobbying the concept of EC to policymakers helps to create support for them in the highly regulated and competitive energy sector. Although there is active support for ECs on the European level, their transposition and effects happen locally, and processes regarding permitting or linking to spatial planning might not exist (Scharnigg & Sareen, 2023).

The EC operator also acts as an intermediary between the project stakeholders and decision-makers, therefore lobbying for the interests of a broad range of stakeholders. ECs may include multiple sectors (energy, building, telecommunications, transportation), so the operator needs to manage and interpret various regulatory frameworks and actor practices. Participating in field-level networks or creating ones is also beneficial through knowledge sharing and creating the field-level identity for ECs (Vernay & Sebi, 2020). Better conceptualisation and understanding of ECs also make it easier for banks and other financiers to participate in projects. Therefore, the operator should have a plan on how financing could be implemented and, preferably, how citizens could be involved in it, e.g. through crowdfunding mechanisms.

Another institution-level capability is related to founding the legal entity. According to European-level directives regarding ECs, they are non-profit entities that aim for economic, environmental and social benefits rather than profits. In the Nordic countries, there are traditions regarding housing associations, which have in both case countries been applied in the EC context. Even if these institutions exist, the operator may need to adapt them to the local context and EC scope.

Capability 2: Aligning stakeholder interests from an organisational perspective

Regarding the internal stakeholders responsible for creating, organising and operating the EC, there needs to be a mutual understanding of the shared value proposition for the end user. Especially in ECs that involve

multiple stakeholders and domains like electricity, district heating (DH) and transportation, the alignment between partners needs to happen such that the end user receives a coherent service (Adner, 2017). ECs affect the businesses of several incumbents (Vanhanen et al., 2023). ECs may decrease the revenue of network companies and the local utility through increased self-sufficiency, which can make them less supportive of EC development. Consequently, the EC operator enacts in designing EC's internal tariffs and incentives for flexibility so that they are aligned with the tariffs of the network companies and utilities. Here, transparency and dialogue with future end users can alleviate misunderstandings, for example on dynamic tariffs that fluctuate throughout the day (Ryszawska et al., 2021). On the other hand, in greenfield projects, real estate developers need to make more up-front investments if they want to create ECs. How the costs and benefits of the investments are shared among the members constructing the EC needs to be appropriately planned to get all actors involved (Vanhanen et al., 2023).

Furthermore, EC design choices need to be carefully considered for long-term benefits. This matters in not only energy technologies and physical infrastructure like energy networks but also data infrastructure. Interoperable data infrastructure enables multi-actor collaboration, as it provides information on how and when energy is being used and produced, how essential appliances function and what kinds of flexibilities are available. In addition, energy storage systems, heat pumps and building automation systems may be coupled with their own data systems and applications. Integrating these different technologies to operate under the EC operator's terms requires open interfaces and collaboration.

Capability 3: Engaging citizens to participate and change behaviour

The EC operator needs to create interest and motivation among local people (including future citizens) on energy matters. On the one hand, the operator should interpret and use local norms, identities and culture as a springboard to legitimise the new EC model to locals, who may be unfamiliar with the concept (Kalkbrenner & Roosen, 2016). It can be made more understandable and framed as something positive by relating it to local culture or norms. On the other hand, the operator can invite citizens to participate in EC creation (Shortall et al., 2022). Surveying people in interviews or focus groups can give information on local values and needs. To obtain ideas or develop certain aspects in an EC, e.g. finances, goals, incentives and feedback systems, the operator can use workshops, forums or public events to engage with local people.

For more specific elements, such as development of the user interface, the operator can arrange co-creation and co-design sessions with potential end

users. One beneficial aspect of a participatory approach is that it supports possible behavioural changes during the operational phase, as the EC's identity is more based on the overall group identity in the neighbourhood. As ECs are moving towards smart and demand flexibility-oriented models, customer understanding and motivation to be a part of the system have an increased role (Hiteva & Foxon, 2021).

Methodology

The authors used a case study approach to examine how EC operators in two Nordic countries engage with citizens and promote participation. EC projects require collaboration among diverse actors, including government, individuals, companies, cooperatives, small businesses and citizens, and the case study method is ideal for exploring such complex settings (Yin, 2017). We focused on Finland and Sweden, as their advanced energy infrastructures and gaps in supporting EC frameworks offer unique insights for understanding how citizens engage in EC within these contexts.

Preconditions for citizen engagement in the case countries

The preconditions for citizen engagement in the two case countries are two-fold. Both countries have highly developed energy infrastructures, with a high share of low-carbon sources through nuclear, hydro and wind power, with some of the lowest retail prices for electricity in Europe (Eurostat, 2024). Citizens have smart meters, which means they can have dynamic contracts, and they are frontrunners in the electrification of heating and transport (Tagliapietra et al., 2024). Finnish and Swedish citizens are also relatively active in switching electricity suppliers, indicating engagement in energy matters. On the other side, Finland and Sweden can be seen as laggards in EC development (ACER, 2023). Neither of the countries has a supportive framework for ECs except the model within an apartment building (in Sweden) or a property (in Finland). Additionally, there are some contradictions in the case countries that make both interesting contexts to examine. For example, while Sweden positions itself as a green frontrunner embracing citizen participation in fronts such as living labs for smart energy experimentation, political visions or policy goals related to ECs are nonexistent (Envall & Rohracher, 2023). The prevalent support mechanisms, expectations and policy instruments for energy transition point towards homeowners of detached houses and for-profit companies. In Finland, housing associations and neighbourhood-level ECs miss a strong and coherent regulatory framework and have ambiguous targets (Lukkarinen et al., 2023). This mix of strong infrastructure and weak policy support makes these countries valuable cases for understanding citizen engagement in EC.

Research approach and data gathering

We examined four cases – two from each country. In Sweden, we focused on Tamarinden (EC1), an emerging smart and sustainable urban district, and Stockholm Royal Seaport (EC2), Sweden's largest urban development project aimed at eliminating fossil fuel use by 2030. In Finland, we explored Hiedanranta (EC3), a greenfield project in a growing city, and Hepokulta (EC4), a large-scale renovation project where multiple properties are being retrofitted simultaneously.

Data was gathered from various secondary sources, including legislation on energy (such as EU Electricity Market Directive 2019/944), Renewable Energy Acts, and subsidy schemes. Additional insights were drawn from project homepages, national and local news, blogs, policy documents, reports, academic journal articles, theses, as well as online videos and podcasts. The various sources complemented each other and helped us triangulate information. The material was analysed through the lens of the three EC operator capabilities presented in the previous chapter. First, each case was examined within its local and national context to understand how specific policy frameworks, regulatory environments and community characteristics impact citizen participation. Following this, a cross-case analysis was conducted to identify how EC projects in each country engage with citizens and manage energy transitions.

Case descriptions

EC1 Tamarinden, Örebro, Sweden

Tamarinden, a sustainable district 2.5 km south of Örebro, began construction in autumn 2022, adding 800 households and a preschool. Focused on energy production, storage and sharing, it redistributes surplus energy among buildings using local sources like solar power and heat. Örebro city and five developers aim to make Tamarinden a model for Sweden's 2030 climate goals.

A tax exemption declared by the Council for Advance Tax Rulings for shared electricity marked a milestone for local energy systems. Among the project developers, these new rules were seen as game changers laying the foundation for innovative ways of constructing local energy systems. In parallel, the city of Örebro and ÖrebroBostäder, a municipal housing company, has embarked on a new partnership with more than 22 other Swedish municipalities, 6 government agencies, and the innovation programme Viable Cities' national initiative "Climate Neutral Cities 2030". Together, their goal is to address legal and regulatory barriers hindering significant progress in reducing climate impact.

EC2 Stockholm Royal Seaport, Stockholm, Sweden

Stockholm Royal Seaport, a former industrial area, plans to add 12,000 homes and 35,000 workplaces. Designated by Stockholm City Council as a testing ground for sustainable solutions, it aims to be fossil-free by 2030 and climate-positive by 2040. The project involves the city, urban planners, residents, businesses and research institutions. The area integrates schools, preschools and parks, with a focus on resource-efficient solutions, climate adaptation and community involvement. Collaboration and innovative thinking are pivotal in advancing creative solutions and encouraging community involvement. Workshops and focus groups, digital media and city walks, as well as physical and virtual spaces have facilitated meetings, activities and initiatives fostering personal involvement and a sense of ownership among residents and workers.

Concerning energy efficiency, the municipal housing company Stockholmskem built two plus-energy buildings in Stockholm Royal Seaport with 43 rental apartments designed to be net energy producers with the help of solar panels, geothermal heat, efficient insulation and ventilation, and recycling of excess heat from wastewater. For example, excess electricity production is sold to the grid and balanced against purchased electricity during colder periods. Torbjörn Kumlin, project manager at Stockholmskem, affirmed that over the year, solar panels produced more energy than the properties needed.

EC3 Hiedanranta, Tampere, Finland

Hiedanranta, a new sustainable district in Tampere, Finland, will eventually accommodate 25,000 citizens. Tampere aims for carbon negativity, using ECs to achieve three goals: (1) deploying customer-focused, community-based models; (2) giving customers feedback on energy use and the ability to control it; and (3) a system based on renewable energy that uses efficiently and flexibly electricity, heating and cooling networks.

In 2014, the city bought the land from a forestry company and transferred it to a city-owned housing development company, allowing more independence from city budget policies. The district will be constructed between 2025 and 2040. Currently, the local utility is developing a low-temperature bidirectional DH system, allowing apartment buildings and companies to sell excess heat to the network. However, creating this system is complex due to the lack of national procedures or tariff structures. Successful implementation requires clear business models understood by architects, building automation system designers, real estate developers and residents investing in the buildings.

An important steering mechanism in the district development is land transfer rules, which construction companies must fulfil when purchasing plots. These rules have provisions on, for example, open data interfaces and energy performance levels. These rules are meant to facilitate collaboration

but also long-term interoperability as technologies develop. A data platform is planned for facilitating data-driven innovations. The area has also hosted energy innovation demonstrations, such as Polar Night Energy's sand battery and biochar by Carbofex.

Although construction has not started yet, citizens have been involved in the planning process through events and workshops. In 2016, public events, including a workshop to generate ideas with local businesses, were held. In 2018, citizens could offer feedback on the district's urban plan in an event with various theme discussion tables.

EC4 Hepokulta, Turku, Finland

In Turku, Finland, eight housing associations in the Hepokulta suburb collaborated on a major, €80m renovation project, one of the largest in Finland. The upgrades included switching from DH to ground-source heat pumps, façade renovations, pipe repairs, new data systems and waste heat recovery. Hepokulta is a 1970s suburb with around 1,400 residents, mostly pensioners. This indicates that a large proportion of residents have lived in the area since its construction. The key institutional innovation in Hepokulta was applying for a green loan as a group. In 2016, it became clear individual housing associations would not be able to gain bank financing, so a new approach was needed. Importantly, there was an existing platform for collaboration between the eight housing associations: a common housing manager, namely Hepokullan Lämpö Oy. They facilitated planning of the group construction with renovation consultants Korjauspartnerit. According to the CEO of Hepokullan Lämpö, the benefits of tendering the renovations as a group amounted to 1.8 million euros.

Despite the extensiveness of the renovation, citizen involvement was limited. Information sessions were popular but saw reduced participation due to Covid-19. An online tool was introduced but was not widely adopted due to the high average age of residents. One link that was perhaps missing was between the housing association boards, who are generally the most knowledgeable residents, and other residents who receive less information. The renovation introduced apartment-based electricity and water metering, requiring residents to switch from collective to individual electricity contracts (which brought more options), but some residents were also hesitant and unfamiliar with the market offerings. Rising loan interest rates also heavily impacted residents.

Overview of the identified EC operator capabilities in the different contexts

The four cases show how interlinked the three distinguished capabilities are, even though they happen on different levels of action. [Table 9.2](#) displays an overview of the identified EC operator capabilities and related activities. The

TABLE 9.2 Overview of Cases through the Lens of the EC Operator’s Three Capabilities and Related Activities

<i>Case and the identified EC operator</i>	<i>Institutional entrepreneurship</i>	<i>Stakeholder alignment</i>	<i>Citizen engagement</i>
Tamariniden Sweden; Örebro Municipality	<ul style="list-style-type: none"> • Receiving new rule of tax exemption for local energy sharing • Engaging in the innovation programme Viable Cities 	<ul style="list-style-type: none"> • Örebro’s municipal authorities engage with developers, environmental experts, and citizens to create a sustainable neighbourhood 	<ul style="list-style-type: none"> • Citizens are actively engaged in planning and decision-making
Hiedanranta, Finland; Housing developer company	<ul style="list-style-type: none"> • Creation of new municipal entity: housing developer company • Creating rules for bidirectional DH 	<ul style="list-style-type: none"> • District-level platform for data management and sharing • Facilitating R&D and piloting • Creating land transfer rules for construction companies 	<ul style="list-style-type: none"> • Workshops and feedback sessions during planning • Customer energy feedback
Hepokulta Finland; Hepokullan Lämpö Oy	<ul style="list-style-type: none"> • Facilitating group financing and getting a green loan 	<ul style="list-style-type: none"> • Group manager and consultant collaboration covering multiple housing associations • Tendering together increasing negotiation power 	<ul style="list-style-type: none"> • Information sessions • Online information-sharing platform • Individual smart metering
Stockholm Royal Seaport Sweden; City of Stockholm	<ul style="list-style-type: none"> • Identifying the regulations, financial instruments and organisational conditions required to ensure feasibility – from early planning to implementation 	<ul style="list-style-type: none"> • The City of Stockholm owns the land, and this ownership allows them to implement stricter requirements beyond existing building codes and legislation 	<ul style="list-style-type: none"> • Game elements and video games, presentations of the local development plan and resident consultation with the public, workshops with entrepreneurs

capability for institutional entrepreneurship refers to the EC operator's ability to create new ownership and governance models, such as the bidirectional DH model in Hiedanranta (case 3) or organising group tendering processes in Hepokulta for a green loan programme (case 4). It also refers to the application of non-established rules and regulations, such as new tax rules for local energy sharing (case 1). From the energy justice perspective, these institutional innovations support the ECs' internal functioning, but they need to respond to the critique of "cherry picking", i.e. distributional justice concerning all energy users. Critics may argue that ECs should not have special treatment, e.g. in taxation. However, in the future, ECs may also carry responsibilities that have previously belonged to the state, so there is a new balance to be sought in how benefits and costs are shared (Van Bommel & Höffken, 2021).

The EC operators' ability to align stakeholder interests happens through new coordination and interaction mechanisms. These include new ways to share data (case 2), public-private partnerships (case 1) and district-level service models (case 3) where customer value is put at the centre. The energy sector has its own characteristics when it comes to incentives and business model development, which have been rapidly changing in recent years. As ECs can cover organisations from building, energy, IT and transportation sectors, finding trust and a common language is not always easy. The whole creation process needs to be grounded in procedural justice so that all stakeholders are considered and heard. Some organisations are more willing to invest in local energy resources than others, which means that setting sustainability targets and requirements is not enough but needs to be accompanied by business models with, e.g., third-party service providers or well-planned financing (case 3). Greater purchasing power from a larger EC entity helps in finding economies of scale with these actors.

The third capability, customer engagement, can be divided into the mechanisms for joining in EC planning and behavioural changes during EC operation. Citizens were involved in various ways in the planning process, especially in the initial ideation. For example, in Sweden (case 1), citizens are actively engaged in planning and decision-making processes, contributing to the shaping of their neighbourhoods through workshops, feedback sessions and community events. This level of engagement aligns with the principles of energy democracy (Szulecki, 2018), where communities have a voice in how energy is produced, distributed and consumed. The decision-making process differs in greenfield and renovation projects, as real estate investors are the decision-makers in new areas, such as Hiedanranta (case 3) and Tamarinden (case 1). In renovation projects, the housing association makes the decision, which requires a thorough explanation of the project and its economics. During construction, the role of citizens is to understand the project's development and how it affects them. In Hepokulta (case 4), this was done through information sessions and an online platform. Due to the Covid-19 pandemic,

live meetings were harder to organise, so online interaction became more important. However, older people were not sufficiently introduced to the usage of the online platform and lacked much of the information. On the one hand, this brings to the forefront the challenge of energy equity and how access to participate could be guaranteed for different citizens. On the other hand, digitalisation enables equal rules for everybody, as apartments' energy usage can be metered accurately.

Implications for practice and policy

This Finnish-Swedish multiple case study examined the capabilities required by an EC operator to establish just and sustainable solutions in the various contexts. In that way, it has contributed to the research gap of crafting an EC operator, identified by [Gohari et al. \(2024\)](#). The studied cases are different to each other and no uniform EC model or management style can be found from them, but some similarities can be still identified. The positioning of citizens in the projects varied according to their roles as decision-makers and the phase of the EC project. The case studies illustrate how the creation of such models requires a broad range of capabilities in handling local politics, financing, business models, regulations, technology and social aspects. Regarding institutional entrepreneurship capabilities, the cases in both countries had similar challenges in navigating energy-related regulations. It could be argued that in Sweden, the innovation network related to ECs is more stable and industry-oriented with the Viable Cities platform, whereas the Finnish cases have been more closely related to research programmes. On the stakeholder alignment level, it is noticeable that in all cases, existing land governance and ownership enabled the creation of district-level collaboration structures. Lastly, citizen engagement was, in both countries, mostly about informing or ideation and not, for example, co-creating energy solutions with the users.

The demanding list of capabilities suggests that there would be potential for public-private partnerships, in which local public actors could take a more proactive role in helping with regulatory frameworks and energy network companies could support more with, e.g., accustomed tariffs. This aligns with the findings by [Scharnigg and Sareen \(2023\)](#), who emphasise the role of EC operators in interpreting regulation. The cases show that integrating citizens into the complex creation process of ECs has its challenges, and mostly, engagement processes include ideation and informing and, oftentimes, shared ownership. However, the long-term success of projects could be further developed through co-creation mechanisms. The best practices from case countries could be shared with regulators and EC operators in other countries. Sharing knowledge of new EC models and tariffs could be incentivised by making it a requirement for receiving governmental funding for the project. Arguably, these findings are also applicable in sectors such as food, transportation and

water management, where environmental issues and new technologies are driving community-driven solutions and a certain level of decentralisation.

Given the four EC cases examined in this study are ongoing projects, future longitudinal studies can be relevant to grasp a project's different phases and the various strategies used to increase citizen participation. Future studies should also expand the research methodology by conducting interviews and/or survey research in addition to secondary sources as this research is solely based on. Additionally, new studies identifying specific co-creation mechanisms, for instance, related to financing, maintenance duties or energy sharing, are needed to facilitate the emergence of an EC and its role in the sustainable energy transition.

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References

- ACER. (2023). *Energy Retail and Consumer Protection 2023 Market Monitoring Report*.
- Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management*, 43(1), 39–58. <https://doi.org/10.1177/0149206316678451>
- Angel, J. (2017). Towards an energy politics in-against-and-beyond the state: Berlin's struggle for energy democracy. *Antipode*, 49(3), 557–576. <https://doi.org/10.1111/anti.12289>
- Dall-Orsoletta, A., Romero, F., & Ferreira, P. (2022). Open and collaborative innovation for the energy transition: An exploratory study. *Technology in Society*, 69, 101955. <https://doi.org/10.1016/j.techsoc.2022.101955>
- Devine-Wright, P. (2012). Energy citizenship: Psychological aspects of evolution in sustainable energy technologies. In *Governing technology for sustainability* (pp. 63–86). Routledge.
- Envall, F., & Rohracher, H. (2023). Technopolitics of future-making: The ambiguous role of energy communities in shaping energy system change. *Environment and Planning E: Nature and Space*, 7(2), 765–787. <https://doi.org/10.1177/25148486231188263>
- European Commission. (2019). A European Green Deal. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- Eurostat. (2024). *Electricity price statistics*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_price_statistics#Electricity_prices_for_non-household_consumers
- Fina, B., & Monsberger, C. (2023). Measures and business model approaches to facilitate the diffusion and integration of energy communities—A special focus on the Austrian case. *Energy Strategy Reviews*, 49, 101161. <https://doi.org/10.1016/j.esr.2023.101161>
- Gohari, S., Silvia, S. C., Ashrafian, T., Konstantinou, T., Giancola, E., Prebreza, B., Aelenei, L., Murauskaitė, L., & Liu, M. (2024). Unraveling the implementation processes of PEDs: Lesson learned from multiple urban contexts. *Sustainable Cities and Society*, 106, 105402. <https://doi.org/10.1016/j.scs.2024.105402>
- Hiteva, R., & Foxon, T. J. (2021). Beware the value gap: Creating value for users and for the system through innovation in digital energy services business

- models. *Technological Forecasting and Social Change*, 166, 120525. <https://doi.org/10.1016/j.techfore.2020.120525>
- Kalkbrenner, B. J., & Roosen, J. (2016). Citizens' willingness to participate in local renewable energy projects: The role of community and trust in Germany. *Energy Research & Social Science*, 13, 60–70. <https://doi.org/10.1016/j.erss.2015.12.006>
- Leskinen, N., Vimpari, J., & Junnila, S. (2020). The impact of renewable on-site energy production on property values. *Journal of European Real Estate Research*, 13(3), 337–356. <https://doi.org/10.1108/JERER-11-2019-0041>
- Lukkarinen, J. P., Salo, M., Faehnle, M., Saarikoski, H., Hyysalo, S., Auvinen, K., Lähteenoja, S., & Marttila, T. (2023). Citizen energy lost in sustainability transitions: Knowledge co-production in a complex governance context. *Energy Research & Social Science*, 96, 102932. <https://doi.org/10.1016/j.erss.2022.102932>
- Magnusson, D. (2022). Better off alone? In F. Karimi & M. Rodi (Eds.), *Energy transition in the Baltic Sea Region* (1st ed., pp. 90–108). Routledge. <https://doi.org/10.4324/9781032003092-8>
- Mahzouni, A. (2019). The role of institutional entrepreneurship in emerging energy communities: The town of St. Peter in Germany. *Renewable and Sustainable Energy Reviews*, 107, 297–308. <https://doi.org/10.1016/j.rser.2019.03.011>
- Osička, J., Szulecki, K., & Jenkins, K. E. H. (2023). Energy justice and energy democracy: Separated twins, rival concepts or just buzzwords? *Energy Research & Social Science*, 104, 103266. <https://doi.org/10.1016/j.erss.2023.103266>
- Pacheco, D. F., York, J. G., Dean, T. J., & Sarasvathy, S. D. (2010). The coevolution of institutional entrepreneurship: A tale of two theories. *Journal of Management*, 36(4), 974–1010. <https://doi.org/10.1177/0149206309360280>
- Ryszawska, B., Rozwadowska, M., Ulatowska, R., Pierzchała, M., & Szymański, P. (2021). The power of co-creation in the energy transition—DART model in citizen energy communities projects. *Energies*, 14(17), 5266. <https://doi.org/10.3390/en14175266>
- Scharnigg, R., & Sareen, S. (2023). Accountability implications for intermediaries in upscaling: Energy community rollouts in Portugal. *Technological Forecasting and Social Change*, 197, 122911. <https://doi.org/10.1016/j.techfore.2023.122911>
- Shortall, R., Mengolini, A., & Gangale, F. (2022). Citizen engagement in EU collective action energy projects. *Sustainability*, 14(10), 5949. <https://doi.org/10.3390/su14105949>
- Szulecki, K. (2018). Conceptualizing energy democracy. *Environmental Politics*, 27(1), 21–41. <https://doi.org/10.1080/09644016.2017.1387294>
- Tagliapietra, S., McWilliams, B., & Trasi, C. (2024). *European clean tech tracker*. <https://www.bruegel.org/dataset/european-clean-tech-tracker>
- Van Bommel, N., & Höffken, J. I. (2021). Energy justice within, between and beyond European community energy initiatives: A review. *Energy Research & Social Science*, 79, 102157. <https://doi.org/10.1016/j.erss.2021.102157>
- Vanhanen, T., Valta, J., & Valkokari, K. (2023). Setting the Stage for a Future Positive Energy District – expectations on Energy System Operators in Case Hiedanranta. EEM 2023, Lappeenranta.
- Van Veelen, B. (2018). Negotiating energy democracy in practice: Governance processes in community energy projects. *Environmental Politics*, 27(4), 644–665. <https://doi.org/10.1080/09644016.2018.1427824>
- Vernay, A.-L., & Sebi, C. (2020). Energy communities and their ecosystems: A comparison of France and the Netherlands. *Technological Forecasting and Social Change*, 158, 120123. <https://doi.org/10.1016/j.techfore.2020.120123>
- Weinrub, A., & Giancatarino, A. (2015). *Toward a climate justice energy platform: Democratizing our energy future*. Local Clean Energy Alliance.
- Yin, R. K. (2017). *Case study research and applications: Design and methods* (Sixth edition). SAGE.

10

THE DEVELOPMENT OF DEMOCRATIC ATTITUDES AND CIVIC VIRTUES IN A DELIBERATIVE MINI-PUBLIC

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Introduction

In many countries, including Finland, municipalities have been on the front-line of adopting democratic innovations, such as participatory budgeting, citizens' initiatives, and various forms of e-democracy. In recent years, a few cities have also experimented with deliberative mini-publics (DMPs), in which a randomly selected group of citizens receives briefing materials, hears experts, discusses in moderated small groups, and crafts proposals for decision-makers. The recently organised DMPs in Finnish municipalities include the *Turku deliberates* citizens' panel, in which city residents had a chance to have their say on urban planning in the city centre. What made *Turku deliberates* an interesting case was that the participants were not only lay citizens but also included city council members. Following [Harris et al. \(2023\)](#), we call DMPs that include politicians (elected officials) along with lay citizens (non-elected residents) mixed-member deliberative forums.

Including politicians in a mini-public can increase the political impact of citizen engagement if the politicians become advocates of the citizens' proposals after the deliberative event ([Setälä, 2017](#)). Politicians may also share their knowledge during a discussion ([Harris et al., 2023](#)) and help discussion groups prepare realistic proposals with a better chance of impacting decision-making. Furthermore, the participation of politicians may increase their trust in deliberative processes ([Harris et al., 2023](#)). Citizens, for their part, may gain trust in political institutions, and their external political efficacy can be enforced when they interact directly with elected officials ([Harris et al., 2023](#); [Setälä, 2017](#)). Yet, there are no controlled experiments on the effects of involving politicians in mini-publics.

In this chapter, we study the development of democratic attitudes and civic virtues in a DMP. By democratic attitudes, we refer to support for different forms of democratic participation, such as taking part in a DMP, giving feedback to public service providers, or voting in a local referendum. By civic virtues, we refer to important skills for political participation, such as political knowledge, political efficacy, political trust, and preparedness for collective action (Grönlund et al., 2010). We contribute to the existing literature by introducing results from a controlled experiment in which citizens were randomly assigned into *Citizens only* or *Mixed* discussion groups, enabling to draw conclusions on the impacts of mixed-member deliberation. Our results show that among all participants, support for deliberative democracy, user democracy, and external political efficacy increased. Internal political efficacy increased when the item was formulated to concern local democracy. An important conclusion from including politicians in DMPs is that we did not see a more positive development of civic virtues in the groups with only citizen participants. Therefore, we can conclude that from a civic virtue perspective, the involvement of politicians in a mini-public has no negative impact.

In the next section, we discuss the potential opportunities and challenges of involving politicians in deliberations together with citizens. After that, we introduce the *Turku deliberates* mini-public, our research questions, and measures. The results section presents the main findings and answers the research questions. In the conclusions, we summarise the main findings and discuss the results in the light of previous research. In the final part, we discuss the implications of our research for practice and policy and offer some suggestions for the organisers of DMPs.

Literature on mixed-member mini-publics

In recent years, theorists have put forward novel institutional designs for coupling arenas of citizen deliberation with representative institutions (Hendriks, 2016). One such proposed method is to invite politicians into mini-public discussions. Scholars argue that the involvement of politicians can enhance their commitment to take up mini-public recommendations in legislative work (Setälä, 2017). Mixed-member deliberation can also mitigate the distance between professional politicians and lay citizens because it enables an exchange of views, learning from one another, and understanding each other's concerns. Especially in light of the contemporary distrust of politics and politicians, deliberation together with politicians could restore citizens' perceived legitimacy of democratic politics (Vandamme et al., 2018, p. 391).

An apparent drawback of including politicians in mini-public deliberations is that they can dominate discussions because, compared to citizens, they have superior experience and skills in political argumentation (Harris et al.,

2023) and knowledge of the topics. Domination can take place in the form of politicians talking more, but also, what politicians say may be regarded as more meaningful if they are perceived to be more experienced in political decision-making and have superior knowledge about the issue at hand (Strandberg et al., 2021).

Some scholars have warned about the possibility that the involvement of politicians in deliberative discussions may bring parliamentary logic into deliberative discussions (Farrell et al., 2018; Flinders et al., 2016). This could mean that instead of following the requirements of deliberation, politicians use similar rhetorical strategies and tactics that characterise parliamentary talk, which is influenced by a strong awareness of acting in front of several audiences. Therefore, politicians often engage in “confrontational dialogue,” which combines party competition and public exhibition (e.g., Ilie, 2003). Rather than engaging with other politicians in a truth-tracking process, politicians may use abusive language and insulting behaviour to question their opponents’ credibility and moral profile (Ilie, 2016, p. 138).

However, it would be misleading to depict the nature of parliamentary talk as exclusively adversarial (Bächtiger, 2014). In many countries, members of parliament also participate in the meetings of special committees that are not open for the public. Out of the public eye, members of parliament are free to express their preferences, search for common interests, and even change their minds after hearing good arguments (Chambers, 2004, p. 399). Under such conditions, “mutual consultation, systematic deliberation and joint discursive undertaking” can become the guiding logic of parliamentary talk (Ilie, 2003, p. 73). If mixed-member deliberation gave rise to this type of communication, discourse quality would not be weakened despite the presence of politicians.

When it comes to the politicians’ domination of discussions, which could influence the development of civic virtues, the evidence is mixed, with some studies observing domination by politicians and others not (Farrell et al., 2020; Grönlund et al., 2022; Harris et al., 2023; Strandberg & Berg, 2020; Strandberg et al., 2021). Our previous study indicates that the politicians who took part in the *Turku deliberates* mini-public were indeed able to adopt a deliberative stance (Grönlund et al., 2022), that is, to see one another “as equals engaged in the mutual exchange of reasons oriented as if to reaching a shared practical judgement” (Owen & Smith, 2015, p. 228). Our analysis of citizens’ survey responses indicated that the involvement of politicians did not affect the citizens’ subjective evaluations of discussion dynamics, inclusiveness of discussions, or their overall assessments of the mini-public. Furthermore, 77 per cent of the citizen participants in the Mixed groups agreed with the statement, “The presence of local councillors in the small group helped me understand the topic at hand,” showing that the politicians’ involvement may affect how citizens process and obtain new knowledge.

Participation in DMPs has been found to shape participants' attitudes towards political institutions and processes (Theuwis et al., 2024). Regarding the development of civic virtues, political knowledge generally increases in DMPs (Grönlund et al., 2010, 2020; Luskin et al., 2022). Nevertheless, the results on other civic virtues are somewhat mixed. For example, Grönlund et al. (2010) observed that participants' political trust increased, whereas political efficacy did not. Studies on the development of civic virtues in mixed-member deliberation are still rare, with few important exceptions. Strandberg et al. (2021) studied deliberations in mixed-member groups but without comparisons to Citizens only groups. They did not observe that political trust or political efficacy would increase due to deliberation. Flinders et al. (2016) had both mixed-member and Citizens only groups, albeit assignment to the groups was not random. They did not observe differences in the development of political efficacy between the two types of groups.

To summarise existing literature, evidence on the development of democratic attitudes and civic virtues in deliberation is mixed. Moreover, while politicians can sometimes dominate the discussions in mixed-member deliberative forums, the evidence does not give an overly pessimistic view of the likelihood of successful mixed-member deliberation.

Research questions

We study how participation in a DMP affects political efficacy, political trust, satisfaction with local democracy, and support for deliberative democracy, user democracy, and referendums. Internal political efficacy refers to an individual's competence to take part in politics, whereas external efficacy refers to the perception that the political system is responsive to citizens' demands and actions (Campbell et al., 1954; Converse, 1972; Craig et al., 1990). Political trust measures confidence in the capacity of different political institutions to fulfil their normative expectations (Grönlund et al., 2010). As such, it is closely related to external efficacy, albeit the two concepts can be separated (Craig et al., 1990).

Since theoretical literature and empirical evidence on mixed-member deliberation do not provide an unambiguous basis for hypothesising, we pose research questions rather than hypotheses. Firstly, we will explore how participants' civic virtues and democracy attitudes develop due to deliberation. To be more specific, we ask *whether the support of deliberative democracy and civic virtues increase due to deliberation (RQ1)*. Since we have already established that the participants' experiences of the mini-public were positive overall (Grönlund et al., 2022) and that they learned about the topic (Grönlund et al., 2020), there is a basis for assuming that support for deliberative democracy increases during deliberation. Trust in political institutions can also increase if the participants' confidence in the overall democratic system is strengthened due to participation. Parallel claims may apply to

political efficacy. Internal and external political efficacy may increase if the participants gain confidence in their ability to participate and impact politics.

Our second question concerns the differences between the two treatment conditions. With respect to these differences, we ask whether support for deliberative democracy and civic virtues increase more in Citizens only groups compared to Mixed groups (RQ2). When politicians are involved in a DMP, it is possible that they abandon their role as elected representatives and instead engage in deliberations as “one of the citizens.” In other words, politicians can disengage from the familiar norms and practices of parliamentary talk and restrain from using the event as a platform for party politics. If this is the case, the involvement of politicians in deliberation can make citizens think more highly of deliberative democracy. A positive development in political trust can occur if participants learn to know representatives and realise their genuine interest in citizens’ opinions. A similar effect on political efficacy may occur if politicians share their knowledge on issue-specific details and ongoing political processes, thus increasing citizens’ belief in their ability for political participation.

Finally, we ask to what extent we find similar effects of the presence of politicians on local-level democratic attitudes and civic virtues (RQ3). We include questions regarding local democracy since municipal decision-making institutions are the most well-known for citizens, and municipalities decide on services that shape citizens’ everyday lives. Local governments are an important context for democratic participation because they allow citizens to have a say in decisions that are more immediate and comprehensible to individuals than state-level policies (Nabatchi & Amsler, 2014). Despite their highly relevant role in shaping citizens’ lives in Finland, trust in local governments is significantly lower than trust in the national government (OECD, 2021). Therefore, the presence of local politicians may increase trust in local democracy in the eyes of citizens to a greater extent than trust towards democratic institutions in general. Also, politicians may share their knowledge on locally relevant issues, which may increase citizens’ belief in their ability to participate in decision-making concerning those issues.

Turku deliberates mini-public

We organised an online DMP together with the City of Turku on the topic of transportation policies in the city centre (Grönlund et al., 2020). The recruitment process started with an invitation mailed to a random sample of 12,000 citizens of Turku. The mini-public took place online, and participants received 50 euros as a reward for their participation. A number of 171 citizens confirmed their participation (55 per cent ($n = 94$) were male, and 45 per cent ($n = 76$) were female). The participants were not entirely representative because they were more educated than the general public (see Grönlund et al., 2020, Appendix B). Nevertheless, the group of participants was diverse, indicating that various views on transportation policies were heard in the discussions.

The mini-public was connected to the city council's work via its decision-making on a new master plan for the city centre. The participants were informed about the political impact of the mini-public. The mini-public was intended to be held face-to-face but was moved online due to the outbreak of the COVID-19 pandemic. The mode itself should not be a major concern since previous research shows similar changes in opinions and similarly positive participant evaluations in organised face-to-face and online deliberations (Gelauff et al., 2023; Grönlund et al., 2009; Strandberg et al., 2019). The first pre-deliberation survey (t1) consisted of questions related to opinions on transportation issues, trust, efficacy, and background variables. The second pre-deliberation survey (t2) included questions on general political knowledge, knowledge about transportation issues, and a questionnaire on a perspective-taking scale (Davis, 1980). Both surveys were conducted before the mini-public in 2020.

Before the small group discussions, briefing material about transport policy was mailed to those who have indicated their willingness to participate. The material consisted of statistics and three scenarios (Small change, Rapid change, and Big change) that varied in terms of how radically they altered the city's transport policies towards the goal of carbon-neutrality. Central topics were the restrictions on private cars in the city centre, the infrastructure for cycling and walking, and public transportation. The briefing materials also included written rules for deliberative discussion.

The online event took place in May 2020. In the event, the participants were randomly assigned into 21 small groups consisting of 5–11 citizens per group. Of the groups, 10 were *Citizens only* groups ($n = 87$), and 11 were *Mixed* groups ($n = 84$). Because of last-minute dropouts, we did not have complete control over the number of participants within the small groups. To form the *Mixed* groups, we followed roughly the procedures used by the Irish Constitutional Convention (Farrell et al., 2020): political parties were represented in proportion to their share of seats in the city council.¹ Each party decided which of its councillors participated, and in most cases, councillors volunteered to participate based on their interest in traffic and urban planning (Grönlund et al., 2022). Two councillors representing different parties were assigned to each *Mixed* group, except for one group that included only one politician. After the discussions, the citizen participants completed a post-deliberation survey (t3), which repeated most items in t1 and the knowledge questions in t2. See Grönlund et al. (2020, 2022) for a more detailed description of the *Turku deliberates* process.

Measures

Table 10.1 shows the items in the sum variables used to measure *Support for deliberative democracy*, *Political trust*, and *External* and *Internal political efficacy*.² The scale for political trust is 0–10, whereas all other items are measured with a four-point Likert scale. The table demonstrates that *Support for deliberative*

TABLE 10.1 The Sum Variables and Their Components

	<i>Support for deliberative democracy^a</i>	<i>Trust in political institutions^b</i>	<i>External political efficacy^a</i>	<i>Internal political efficacy^a</i>
Items	Representative democracy should be supported by political debates for ordinary citizens.	Political parties	By voting, ordinary people can influence political decision-making.	Sometimes politics seems so complicated that I don't really understand what's going on.
	Personally, I would like to take part in political debates for citizens.	Parliament	MPs are rapidly distancing themselves from the problems of ordinary people (R).	I am confident in my own ability to participate in politics.
		Finnish government	I have no say in what the government and parliament decide (R).	
		Politicians	Parties are only interested in people's votes, not their opinions (R).	
Cronbach's alpha	t1=0.741; t3=0.595	t1=0.932; t3=0.913	t1=0.855; t3=0.825	t1=0.458; t3=0.442

^a Question: What do you think of the following statements? Four-point scale from Disagree completely to Agree completely.

^b Question: How much do you trust the following actors? Tell your opinion on a scale from zero to ten, where zero means "I do not trust at all" and ten "I trust completely".

democracy shows satisfactory internal consistency, measured with Cronbach's alpha, at t1, whereas internal consistency at t3 is clearly lower. *External political efficacy* and *Trust in political institutions* have satisfactory internal consistency both at t1 and t3. *Internal political efficacy* does not show satisfactory consistency at t1 or t3, and we therefore analyse items of internal efficacy separately.

For measures concerning local democracy, we created a sum variable called *Satisfaction with local representative democracy*, which taps into the respondents' attitudes towards fairness and responsiveness of current representative democracy in the City of Turku. Because of low internal consistency,

TABLE 10.2 The Variables Concerning Local Democracy and Their Components

	<i>Satisfaction with local representative democracy^a</i>	<i>Support for user democracy^a</i>	<i>Support for referendums^a</i>	<i>Trust in local political institutions^b</i>	<i>Local (internal) political efficacy^a</i>
Items	Decision-making in the City of Turku is fair and treats all residents equally.	Residents who use public services should have more say in the decision-making related to public services in the City of Turku.	A local referendum should be held when decisions are made on the most important political issues in the City of Turku.	City of Turku civil servants	I am familiar with urban planning and land use in the City of Turku.
	Citizens' opinions are taken into account in the City of Turku.			Turku City Council	
Cronbach's alpha	t1=0.833; t3=0.810			t1=0.951; t3=0.863	

^a Question: What do you think of the following statements? Four-point scale from Disagree completely to Agree completely.

^b Question: How much do you trust the following actors? Tell your opinion on a scale from zero to ten, where zero means "I do not trust at all" and ten "I trust completely".

we measured *Support for user democracy* and *Support for referendums* with separate items. *Trust in local political institutions* is measured on a scale from 0 to 10 and consists of trust towards the city council and local civil servants. Furthermore, we included a measure for *Internal political efficacy at the local level, i.e., the respondents' assessment of how well they know the topic of deliberations, which was specified as land use and urban planning in Turku*. Table 10.2 shows the measures and sum variables concerning local democracy.

Results

Table 10.3 shows the results on support for deliberative democracy, trust in political institutions, external political efficacy, and the two items measuring internal political efficacy. The table compares all participants, participants in

TABLE 10.3 The Effects of Deliberation on Democratic Attitudes and Civic Virtues (Means and Standard Deviations in All Groups)

		<i>Before (t1)</i>	<i>After (t3)</i>	<i>Difference t3-t1 (p)^a</i>	<i>N</i>
<i>Support for deliberative democracy</i>	All	3.024 (0.627)	3.491 (0.507)	0.467 (<0.001)	165
	Citizens only	3.010 (0.643)	3.500 (0.494)	0.49 (<0.001)	85
	Mixed	3.043 (0.612)	3.481 (0.524)	0.438 (<0.001)	80
	Difference treatment conditions (p)	-0.033 (0.742)	0.019 (0.758)		
<i>Trust in political institutions</i>	All	6.355 (1.700)	6.429 (1.584)	0.074 (0.331)	165
	Citizens only	6.378 (1.663)	6.467 (1.580)	0.089 (0.380)	84
	Mixed	6.330 (1.747)	6.390 (1.596)	0.059 (0.611)	81
	Difference treatment conditions (p)	0.220 (0.933)	0.087 (0.724)		
<i>External political efficacy</i>	All	2.723 (0.273)	2.787 (0.252)	0.064 (0.003)	169
	Citizens only	2.746 (0.249)	2.755 (0.226)	0.009 (0.754)	85
	Mixed	2.699 (0.295)	2.819 (0.274)	0.12 (<0.001)	84
	Difference treatment conditions (p)	0.047 (0.263)	-0.064 (0.102)		
<i>Internal political efficacy (politics seems so complicated)</i>	All	2.790 (0.852)	2.685 (0.710)	-0.105 (0.052)	162
	Citizens only	2.659 (0.820)	2.646 (0.822)	-0.013 (0.854)	82
	Mixed	2.925 (0.868)	2.725 (0.779)	-0.2 (0.020)	80
	Difference treatment conditions (p)	-0.266 (0.038)	-0.079 (0.452)		
<i>Internal political efficacy (confidence in own ability)</i>	All	3.224 (0.711)	3.237 (0.658)	0.013 (0.806)	152
	Citizens only	3.143 (0.702)	3.156 (0.650)	0.013 (0.877)	77
	Mixed	3.307 (0.716)	3.320 (0.661)	0.013 (0.843)	75
	Difference treatment conditions (p)	-0.164 (0.120)	-0.164 (0.127)		

^a t-tests, two-sided *p*.

Citizens only and in Mixed groups before (t1) and after (t3) deliberation. Values in bold remain statistically significant after considering multiple comparisons. “Don’t know” answers are removed from analyses to capture genuine opinions without the influence of no opinion. Measures were coded so that an increase in the variable’s value indicates increased agreement with the statement, apart from reversed coded variables.

When answering our first research question, we look at the rows with all participants for each variable. Our analysis shows that support for deliberative democracy increased among all the participants. This finding is based on the statistically significant differences in mean values between the two-time points, shown in the column “Difference” in [Table 10.3](#). Regarding trust in political institutions, political trust is relatively high among all the participants, and there is a slight increase in political trust due to taking part in deliberation, but the difference is not statistically significant. External political efficacy, in turn, increased among all participants.

In terms of our second research question, we see that the presence of politicians did not influence the participants’ views on deliberative democracy in comparison to groups in which politicians were not present. In both groups, support for deliberative democracy increased, and the difference between the treatment conditions is not statistically significant at t3. With respect to the participants’ sense of external efficacy, i.e., responsiveness of the political system, we see a statistically significant increase during deliberation in *Mixed* groups but not in *Citizens only* groups. However, the difference between the two treatment groups is not statistically significant at t3. Regarding political trust and the two separate measures of internal political efficacy, none of the differences between the *Citizens only* groups and *Mixed* groups are statistically significant. In other words, the treatment did not produce differences in these civic virtues.

Finally, we turn to answer our third research question concerning local democracy. [Table 10.4](#) shows that participation in deliberation increased satisfaction with fairness and responsiveness of current representative decision-making among the participants of all groups. The citizens’ desire for more user democracy, i.e., wider engagement of residents in decision-making concerning public services, increased among all the participants. This change proved to be statistically significant when considering multiple comparisons. There was no significant statistical change in support for local referendums. Additionally, we did not find any effect on local political trust, which aligns with the findings concerning general political trust.

However, deliberation on traffic planning increased the participants’ sense of competence in urban planning and land-use matters. The increase is statistically significant among all participants. This finding indicates that participation in deliberation on traffic and urban planning positively affects citizens’ internal political efficacy on local politics but not general internal political

TABLE 10.4 The Effects of Deliberation on Local Democratic Attitudes and Civic Virtues (Means and Standard Deviations in All Groups)

		<i>Before (t1)</i>	<i>After (t3)</i>	<i>Difference t3–t1 (p)^a</i>	<i>N</i>
<i>Satisfaction with local representative democracy</i>	All	2.623 (0.704)	2.727 (0.634)	0.105 (0.025)	110
	Citizens only	2.651 (0.718)	2.642 (0.675)	0.009 (0.875)	53
	Mixed	2.597 (0.697)	2.807 (0.588)	0.211 (0.003)	57
	Difference treatment conditions (p)	–0.005 (0.966)	0.183 (0.086)		
<i>Support for user democracy</i>	All	3.059 (0.653)	3.224 (0.578)	0.164 (0.001)	152
	Citizens only	3.054 (0.700)	3.284 (0.537)	0.230 (0.003)	74
	Mixed	3.064 (0.610)	3.167 (0.612)	0.103 (0.117)	78
	Difference treatment conditions (p)	–0.024 (0.821)	0.070 (0.450)		
<i>Support for referendums</i>	All	2.556 (0.946)	2.648 (0.975)	0.093 (0.079)	162
	Citizens only	2.655 (0.938)	2.667 (0.923)	0.012 (0.859)	84
	Mixed	2.449 (0.949)	2.628 (1.033)	0.179 (0.030)	78
	Difference treatment conditions (p)	0.195 (0.185)	0.012 (0.937)		
<i>Trust in local political institutions</i>	All	6.355 (1.894)	6.536 (1.530)	0.181 (0.082)	166
	Citizens only	6.340 (2.015)	6.512 (1.648)	0.172 (0.241)	84
	Mixed	6.372 (1.774)	6.561 (1.409)	0.189 (0.203)	82
	Difference treatment conditions (p)	–0.028 (0.923)	–0.061 (0.796)		
<i>Local (internal) political efficacy</i>	All	2.346 (0.816)	2.590 (0.952)	0.244 (<0.001)	156
	Citizens only	2.312 (0.765)	2.520 (0.771)	0.208 (0.004)	77
	Mixed	2.380 (0.867)	2.659 (0.732)	0.278 (0.003)	79
	Difference treatment conditions (p)	0.062 (0.626)	0.140 (0.236)		

^a t-tests, two-sided *p*.

efficacy. Notably, the presence of politicians does not seem to have an effect on the internal political efficacy in either context. Furthermore, at t3, none of the differences between *Citizens only* and *Mixed* groups are statistically significant with regard to items of local democracy.

Conclusion

We observed that *Support for deliberative democracy*, operationalised as engaging citizens to discuss political issues, increased during deliberation among all the participants. External political efficacy, that is, belief in citizens' influence on political decisions, increased among all participants and in the *Mixed* groups. A similar development, however, was not observed in the *Citizens only* groups. Citizens' confidence in their own ability to participate in politics and political trust did not increase during deliberation. Regarding measures of local democracy, support for user democracy, and internal political efficacy increased among all the participants. Support for user democracy may reflect the participants' positive experience of the *Turku deliberates* mini-public and is in line with the increased support for deliberative democracy. Increased internal political efficacy shows that the participants' sense of being able to influence local politics increased due to participation. What is highly relevant from the point of this chapter is that none of the differences between *Citizens only* and *Mixed* groups were statistically significant at t3. In other words, the presence of politicians in deliberations did not influence the development of democracy attitudes or civic virtues differently in comparison to deliberations among citizens.

Our results clearly show that the presence of politicians in deliberations does not negatively influence the development of civic virtues among participating citizens. This finding is in line with our earlier observation, which shows that the presence of politicians did not influence opinion transformations or learning (Grönlund et al., 2020) and that it did not influence the participants' experiences of the mini-public (Grönlund et al., 2022). Our observation aligns with a previous study, conducted without a random allocation into *Citizens only* and *Mixed* groups, that did not observe significant differences in internal or external efficacy between *Citizens only* or *Mixed* groups (Flinders et al., 2016).

However, it is noteworthy that the participating politicians were local-level actors who are less professional or prominent in the news media than national-level politicians. It may be that local councillors were not considered that different from the participating citizens, which may explain why discussions went as smoothly as observed. Additionally, since *Turku deliberates* was organised online, we cannot make a direct comparison with an identical mini-public organised offline. However, previous research has shown that face-to-face and online deliberations produce similar outcomes (Gelauff et al., 2023; Grönlund et al., 2009; Strandberg et al., 2019). More research is needed to establish whether similar observations would be made with state-level politicians or an offline platform.

Implications for practice and policy

As the wave of deliberative democracy continues to sweep over the Western World (OECD, 2020), it is important to investigate the impact of DMPs on civic virtues and public attitudes towards democracy. There may be implications for broader democratic reforms in the future if DMPs shape participants' political efficacy and attitudes towards democratic governance. Our research contributes to the discussion by analysing how the composition of the mini-public, namely the inclusion of politicians in deliberations, affects democracy perceptions and attitudes. The inclusion of politicians may help revitalise the support for representative democracy among participants of the mini-public, but it may also dampen the critical potential of mini-publics by decreasing the critical scrutiny of authorities (Böker, 2017).

To avoid the strategic use of DMPs, we have some suggestions for the organisers of the DMPs. Firstly, lay citizens should have an opportunity to participate in the agenda-setting of the DMPs. For example, they could be initiated through citizens' initiatives, where citizens can propose a topic for a DMP, and those initiatives that receive enough support should be implemented. Secondly, DMPs could also be transformed into permanent institutions that can assemble periodically to issue statements on public policies or other topical issues. The members of the mini-public could be selected from a larger pool of candidates or appointed for a longer term, perhaps for the whole electoral term. Thirdly, an impartial body could be appointed to design the details of the deliberative process and select the experts to maintain its integrity. Fourthly, if politicians are invited to a DMP, they should be prevented from transforming it into another platform for party politics. Therefore, the organisers of the DMP should pay attention to preparing the politicians so that they approach the discussions with a deliberative stance. Also, the moderators of the mini-publics should pay attention to the equality of the process so that all participants can engage in deliberation on an equal footing and follow the rules of the deliberative process. Finally, to give participating politicians more freedom to be influenced by opinions and justifications that arise in the mini-public deliberations, DMP should be organised before the party publicly reveals its stance on the topic of the mini-public. Taking these issues into consideration and following good practices in terms of organising DMPs provide the basis for a successful coupling of mini-publics to policy-making.

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Disclosure statement

The authors report there are no competing interests to declare.

Notes

- 1 National Coalition Party (6 councillors in the mini-public), Green League (5), Social Democratic Party (4), Left Alliance (3), Finns Party (2), and Swedish People's Party (1).
- 2 We identified three democracy attitude factors with Principal Component Analysis (Varimax with Kaiser Normalisation) and two factors of political efficacy. However, we dropped two democracy attitude factors from further analysis because of low internal consistency (low Cronbach's alpha values). We also dropped one item (support for referendums) from the *Support for deliberative democracy* sum variable since it made the internal consistency of the sum variable lower. Finally, the two items of internal political efficacy were analysed separately because of low internal consistency.

References

- Bächtiger, A. (2014). Debate and deliberation in legislatures. In S. Martin, T. Saalfeld, & K. W. Strøm (Eds.), *The Oxford Handbook of Legislative Studies* (pp. 145–166). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199653010.013.0008>
- Böker, M. (2017). Justification, critique and deliberative legitimacy: The limits of mini-publics. *Contemporary Political Theory*, 16(1), 19–40.
- Campbell, A., Gurin, G., & Miller, W. E. (1954). *The voter decides*. Row, Peterson.
- Chambers, S. (2004). Behind closed doors: Publicity, secrecy, and the quality of deliberation. *Journal of Political Philosophy*, 12(4), 389–410.
- Converse, P. E. (1972). Change in the American electorate. In A. Campbell & P. E. Converse (Eds.), *The human meaning of social change* (pp. 263–337). Russell Sage Found.
- Craig, S. C., Niemi, R. G., & Silver, G. E. (1990). Political efficacy and trust: A report on the NES pilot study items. *Political Behavior*, 12(3), 289–314.
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10.
- Farrell, D. M., Harris, C., & Suiter, J. (2018). Bringing people into the heart of constitutional design: The Irish constitutional convention of 2012–2014. In X. Contiades & A. Fotiadou (Eds.), *Participatory constitutional change* (pp. 120–136). Routledge.
- Farrell, D. M., Suiter, J., Harris, C., & Cunningham, K. (2020). The effects of mixed membership in a deliberative forum: The Irish constitutional convention of 2012–2014. *Political Studies*, 68(1), 54–73.
- Flinders, M., Ghose, K., Jennings, W., Molloy, E., Prosser, B., Renwick, A., ..., & Spada, P. (2016). *Democracy matters. Lessons from the 2015 Citizens' assemblies on English devolution*. Retrieved from <https://eprints.soton.ac.uk/391972/>
- Gelauff, L., Nikolenko, L., Sakshuwong, S., Fishkin, J., Goel, A., Munagala, K., & Siu, A. (2023). Achieving parity with human moderators. A self-moderating platform for online deliberation. In S. Boucher, C. A. Hallin, & L. Paulson (Eds.), *The Routledge handbook of collective intelligence for democracy and governance* (pp. 202–210). Routledge.
- Grönlund, K., Herne, K., Jäske, M., Liimatainen, H., Rapeli, L., Värttö, M., Schauman, J., Siren, R., & Weckman, A. (2020). Implementing a democratic innovation: Online deliberation on a future transport system. City of Turku Urban Research Programme (Research Reports 4/2020). Retrieved from https://www.turku.fi/sites/default/files/atoms/files/tutkimusraportteja_4-2020.pdf

- Grönlund, K., Herne, K., Jäske, M., & Värttö, M. (2022). Can politicians and citizens deliberate together? Evidence from a local deliberative mini-public. *Scandinavian Political Studies*, 45(4), 410–432.
- Grönlund, K., Setälä, M., & Herne, K. (2010). Deliberation and civic virtue: Lessons from a citizen deliberation experiment. *European Political Science Review*, 2(1), 95–117.
- Grönlund, K., Strandberg, K., & Himmelroos, S. (2009). The challenge of deliberative democracy online – A comparison of face-to-face and virtual experiments in citizen deliberation. *Information Polity*, 14(3), 187–201.
- Harris, C., Farrell, D., & Suiter, J. (2023). Mixed-member deliberative forums: Citizens' assemblies bringing together elected officials and citizens. In M. Reuchamps, J. Vrydagh, & Y. Welp (Eds.), *De Gruyter handbook of Citizens' assemblies* (pp. 155–168). De Gruyter.
- Hendriks, C. M. (2016). Coupling citizens and elites in deliberative systems: The role of institutional design. *European Journal of Political Research*, 55(1), 43–60. <https://doi.org/10.1111/1475-6765.12123>
- Ilie, C. (2003). Discourse and metadiscourse in parliamentary debates. *Journal of Language and Politics*, 1, 269–291.
- Ilie, C. (2016). Parliamentary discourse and deliberative rhetoric. In P. Ihalainen, C. Ilie, & K. Palonen (Eds.), *Parliament and parliamentarism* (pp. 133–145). Berghahn Books.
- Luskin, R. C., Sood, G., Fishkin, J. S., & Hahn, K. S. (2022). Deliberative distortions? Homogenization, polarization, and domination in small group discussions. *British Journal of Political Science*, 52(3), 1205–1225.
- Nabatchi, T., & Amsler, L. B. (2014). Direct public engagement in local government. *The American Review of Public Administration*, 44(4), 63–88.
- OECD (2020). *Innovative Citizen Participation and New Democratic Institutions*. OECD. <https://doi.org/10.1787/339306da-en>
- OECD (2021). *Drivers of trust in public institutions in Finland, building trust in public institutions*. OECD Publishing.
- Owen, D., & Smith, G. (2015). Survey article: Deliberation, democracy, and the systemic turn. *Journal of Political Philosophy*, 23(2), 213–234. <https://doi.org/10.1111/jopp.12054>
- Setälä, M. (2017). Connecting deliberative mini-publics to representative decision making. *European Journal of Political Research*, 56(4), 846–863.
- Strandberg, K., Backström, K., Berg, J., & Karv, T. (2021). Democratically sustainable local development? The outcomes of mixed deliberation on a municipal merger on participants' social trust, political trust, and political efficacy. *Sustainability (Switzerland)*, 13(7231).
- Strandberg, K., & Berg, J. (2020). When reality strikes: Opinion changes among citizens and politicians during a deliberation on school closures. *International Political Science Review*, 41(4), 567–583.
- Strandberg, K., Himmelroos, S., & Grönlund, K. (2019). Do discussions in like-minded groups necessarily lead to more extreme opinions? Deliberative democracy and group polarization. *International Political Science Review*, 40(1), 41–57.
- Theuwis, M.-I., van Ham, C., & Jacobs, K. (2024). A meta-analysis of the effects of democratic innovations on participants' attitudes, behaviour and capabilities. *European Journal of Political Research*. <https://doi.org/10.1111/1475-6765.12722>
- Vandamme, P. É., Jacquet, V., Niessen, C., Pitseys, J., & Reuchamps, M. (2018). Intercameral relations in a bicameral elected and sortition legislature. *Politics and Society*, 46(3), 381–400.

PART III

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11

THE DARK SIDE OF MUNDANE DIGITALISATION

The use of digital technologies in social work with vulnerable clients

Alexandrina Schmidt

Introduction

As digitalisation has become ubiquitous in society and varied technologies change public and private organisations, investigating digitalisation constitutes an expanding and increasingly vast research field. Research continues to investigate newly developed technologies. Meanwhile, technologies that are considered mundane tend to escape popular attention, as they are perceived as boring, ordinary and unremarkable because they are well-integrated into everyday life (Greenwood & Cox, 2023; Leszczynski, 2020; Michael, 2003; Pink & Sumartojo, 2018; Plesner & Justesen, 2022). A particular research strand foregrounds the mundane and unnoticed sides of digitalisation and mandates further research into unremarkable mundane technologies that tend to remain in the dark. Such technologies take centre stage in this chapter.

Technologies become mundane when these are well-integrated into everyday routines and are taken for granted. For example, social work utilises information systems to efficiently and easily select, share and record information about clients and their cases. These systems are indispensably integrated into social work and daily work routines. However, such technologies are not passive; they should be understood as an aspect of the welfare encounter that generates challenges for social workers and their clients. Within digitalisation studies, 'technology' can be approached from varied perspectives. This chapter adopts a social constructivist view of technology and emphasises that technology shapes and is shaped by social life (Nordesjö et al., 2022; Plesner & Husted, 2020). This chapter will first define mundane technologies and situate these within social work and the welfare encounter. Next, it will offer a short review of the literature focusing on information systems in digitalised

public institutions. Lastly, the analysis section of the chapter unfolds an empirical example and the chapter concludes with implications for practice and policy.

What are mundane technologies?

Mundane technologies mediate and reflect everyday life; they tend to be unnoticed and taken for granted as they reproduce and engage in routine daily activities (Greenwood & Cox, 2023; Michael, 2003). Such technologies have become ordinary and well-integrated into our everyday lives, becoming unremarkable in the daily practices (Michael, 2003, p. 131). In other words, mundane technologies have once been exotic and new but have become such an integral part of our everyday lives that we cease to notice their involvement. Exotic and new technologies are characterised by a changing and transformative character but are developed through and due to the established work and practices of mundane technologies (Michael, 2003, p. 132). Thus, mundane technologies have a performative function because they mediate and reproduce everyday life and social interaction in unremarkable and unnoticed ways (Dourish et al., 2010; Greenwood & Cox, 2023; Michael, 2006). Some examples of mundane technologies are mobile phones, e-mail, administrative systems or office computer applications. Even though such technologies continue to be updated and improved, their functions are mundane as they are integrated into our everyday lives, becoming taken for granted and indispensable to daily routines. Another characteristic of mundane technologies is that they are often repurposed and adjusted to the task at hand and the user's intentions (Dourish et al., 2010). When mundane technologies break down, they become visible as they must be brought back to order (Michael, 2006, p. 52). The ordinariness and unremarkable character of mundane technologies produce what Plesner and Justesen (2022, p. 150) denote as an inextricable dark side of digitalisation because such technologies tend to escape attention but produce powerful implications for organisations. They mandate more attention to the unnoticed mundane technologies of everyday lives (Plesner & Justesen, 2022). This chapter focuses on vulnerable citizens and social work in public services, foregrounding mundane technologies.

In this chapter, mundane technologies are delimited to information and communication technologies (ICTs), which are designed for collecting, sharing, storing and communicating information (Gillingham, 2013; López Peláez et al., 2018). ICTs are a good example of mundane technologies because they have become ubiquitous and well-integrated into everyday life. ICTs include, for example, varied tools, media, Internet, applications, social media, administrative systems etc. In social work, ICTs permeate everyday work routines, such as documenting, supporting or preparing

for welfare encounters with clients by using digitally stored information. ICTs may promote more transparent social work practices through digital documentation but also risk reducing the tacit knowledge of social work and produce emotional strain for social workers (De Witte et al., 2016; Løberg & Egeland, 2023; Parton 2008; Steiner 2021). For citizens who are disadvantaged and receive welfare services, ICTs, such as self-service solutions, digital mail, digital forms for applications for benefits etc. may produce inequalities. For instance, differentiated access to and skills in using these mundane technologies may result in further marginalisation and barriers to social participation (Helsper & Reisdorf, 2017; Ragnedda et al., 2022; van Deursen & van Dijk, 2011). Existing research also questions the role of digital technologies in vulnerable citizens' participation in society (Schou & Hjelholt, 2018) by studying digital inequality. Research shows that digitally exclusionary processes are intertwined with varied social conditions and inequalities.

Recent research emphasises that the adoption of mundane technologies in social work brings forward the inextricability of both challenges and opportunities of digitalisation (Steiner, 2021). For instance, information systems may grant transparency, efficiency and accountability but risk allowing scarce space for the citizen's voices (Matarese & Caswell, 2018). In this chapter, the focus is on information systems and how these are used by social workers in welfare encounters with vulnerable citizens, who receive welfare benefits ('clients' from hereon). Through this lens, the chapter considers citizen participation through the everyday dynamics of social work and the welfare encounter, which include the use of mundane technologies. In this chapter, citizens are understood as clients of welfare services. The following section will delve into how information systems play a role in social work practices and the welfare encounter.

Information systems in social work

There are high demands for detailed administrative work and documentation practice in the social work profession (De Witte et al., 2016; Järvinen & Mik-Meyer, 2012). Information systems support such demands and practices and bring about different challenges, tensions and risks (López Peláez et al., 2018). For instance, using electronic information systems can help to more efficiently and easily store and record knowledge about clients for documentation and accountability purposes. However, such practices may also create tensions between professional values and bureaucratic ideals of accountability (Burton & van den Broek, 2009) and challenges in digitalising tacit forms of knowledge such as intuition (Huuskonen & Vakkari, 2015) or non-verbal communication (Løberg & Egeland, 2023; Pink et al., 2022). Research reveals that the usage of electronic information systems changes the types of

information and knowledge recorded and selected for documentation purposes in social work practice.

From narrative to informational descriptions

Social workers select which information to record, collect and share through ICTs. One key discussion in the literature on recording and storing information in social work contemplates that information technology promotes recording detailed informational descriptions about clients which in turn risks overlooking the social and narrative information about the why of clients' lives and circumstances (Gillingham, 2013; Parton, 2008; Steyaert & Gould, 2009). Hence, social work practice changes from valuing the depth of social and narrative information to focusing on recording detailed but surface-level information which resembles a database way of thinking (Parton, 2008). Thus, the stored information about clients in social work practice increasingly puts individuals into categories that overlook ambiguities and focus on information that fits the system (De Witte et al., 2016; Parton, 2008).

In her study of digital client representations in electronic information systems, Løberg (2023) argues that frontline workers may use complication responses as their coping strategy. Complications responses reconstruct and reassemble clients' narrative information after it has been fragmented into descriptions fit for the information systems (Løberg, 2023). In a study of social services in child protection, Huuskonen and Vakkari (2015) show that social workers make intentional selections of which information to store and record. These selections depend on the clients' societal context. Social workers may also make unintentional selections which filter out information, e.g. omitting certain details and stories. Unintentional selections are caused by constrained everyday work realities, such as occupying multiple roles simultaneously in welfare meetings, i.e. the roles of listener, notetaker and moderator of the conversation. The intentional and unintentional selections of recorded knowledge generate specific client stories (Huuskonen & Vakkari, 2015).

When electronic information systems strain social workers' work, social workers might develop strategies to preserve their perception of their professional roles and the relational and narrative approach with clients (De Witte et al., 2016). In such instances, social workers might engage in everyday acts of resistance by rejecting the structural constraints of digital tools in their attempt to balance the world of recording and the relational social world with clients (De Witte et al., 2016). De Witte et al. (2016) find that social workers make strategic and moral decisions when using electronic information systems, influencing what information is recorded and shared. Such actions have been investigated as professional everyday acts of resistance against restrictive working conditions or imposed regulations that affect the

quality of work (Carey & Foster, 2011; Feldman, 2022; Strier & Breshtling, 2016), which will be the focus of the following section.

Professional acts of resistance

Social workers' everyday acts of resistance have been conceptualised through terms such as deviant social work (Carey & Foster, 2011), rogue social workers (Weinberg & Banks, 2019) and disruptive social work (Feldman, 2022). Such terms examine how social workers manage contrasting demands, reshape practices and bend rules and regulations to secure the quality of work and welfare and to benefit their clients (Carey & Foster, 2011; Feldman, 2022; Weinberg & Banks, 2019).

One way of conceptualising professional acts of resistance is through 'deviant social work' (Carey & Foster, 2011, p. 578). Deviant social work can be defined as small acts of resistance, deception or sabotage which defy and subterfuge expected institutional stipulations in hidden and unnoticeable ways. Acts of deviant social work include e.g. spending more time on clients than assigned, exaggerating client needs, confronting management or reluctant use of punitive interventions (Carey & Foster, 2011). Such practices of deviant social work are valued positively because they are often used to benefit vulnerable clients with whom social workers work (Carey & Foster, 2011).

Another way of defining acts of resistance is through 'rogue social work' (Weinberg & Banks, 2019, p. 372). Rogue social work represents social workers' responses to challenges in their work practices arising from organisational pressures, regulation of practice and scarce resources. In contrast to 'deviant social work', this concept builds on principles of social justice and ethics. Weinberg and Banks (2019) define social workers' everyday resistance as acts that refuse, subvert prescribed practices, prioritise service over short-term solutions and bend rules that contradict their perception of ethical practice and professional ideals. Similar to Carey and Foster (2011), Weinberg and Banks (2019) find that rogue social work is motivated by helping their clients.

Lastly, professional acts of everyday resistance may also be described as 'disruptive social work' (Feldman, 2022, p. 760). While the other definitions focus on individual acts, disruptive social work denotes a collective expression of resistance and is directed towards societal change. Such acts may be expressed through resisting authorities to support vulnerable clients and avoid measures that worsen social workers' working conditions (Feldman, 2022).

Previous research states that more research is needed on social workers' use of mundane technologies and how they manage the changes such technologies induce in their work practices and examine the use of technologies in working with vulnerable clients (Christensen et al., 2022; Høybye-Mortensen, 2015; Lindgren et al., 2019; Løberg, 2021; Tummers & Rocco,

2015), as well as further research on the everyday acts of resistance in social work (Carey & Foster, 2011; Weinberg & Banks, 2019).

The following empirical example demonstrates social workers' use of a mundane technology – a simple digital CV tool – in welfare encounters with vulnerable clients in Danish job centres. It shows the inextricability of challenges and opportunities in using information systems by illustrating that social workers can both strategically employ collected information about their clients and resist prescribed procedures for using information systems such as the CV tool to benefit the most vulnerable clients in their perceptions. As such, social workers may gain opportunities to use information strategically.

An empirical example: The strategic use of a digital CV

The empirical example is taken from Schmidt's (2023)¹ Danish study of social work in job centres with unemployed vulnerable clients, which was part of her doctoral thesis (Schmidt, 2024) focusing on the role of mundane technologies in social work with vulnerable clients and clients' agentic practices. The study (Schmidt, 2023) was based on qualitative interviews with 21 social workers in Danish job centres collected in 2021. It utilised Goffman's (1969) concept of 'expression games' in strategic interaction as the theoretical framework to gain an understanding of how information systems are used by social workers strategically in interactions with clients, through social workers' perceptions. Furthermore, the study utilised a constructionist grounded theory approach (Charmaz, 2014) to analyse the collected data. The coding process proceeded from open-ended initial codes to focusing on a specific category, i.e. 'using the CV', which combined several subcodes, three of which were chosen to guide the analysis.

The digital CV tool serves as an example of a simple information system, representing a mundane technology that is taken for granted and regarded as boring by those who use it. However, it plays an important role in welfare encounters for social workers and clients. All unemployed Danish citizens must have a digital CV when they are enrolled as clients at the job centre and receive welfare benefits. The digital CV compiles the citizens' education, job experience, internships and other job-related qualifications. Social workers are instructed to use the digital CV as a dialogue tool in the welfare encounter to direct the conversation towards the labour market and the clients' return to it. In this study social workers are professionals working closely with clients on their cases, having regular meetings and overseeing several parts of their cases. This definition follows Mik-Meyer (2017) in foregrounding the work practices of social

workers with their clients rather than their educational training or legislative authority. Vulnerable clients in this study are long-term unemployed and vulnerable because they experience additional problems in addition to unemployment such as social, physical or mental challenges, as well as receive the lowest welfare benefits.

The study finds that the digital CV is used in three ways and represents a 'social case rather than a CV' (Martha) by compiling detailed digital information about the clients' occupational biographies.

Firstly, as a detailed digital document, the CV takes on the role of an examination that tests the clients' expressed vulnerabilities by recording and storing the information about their lives. Social workers explain how the CV can sometimes be difficult for the clients to compile or participate in creating because they have scarce education and job experience to note. Some social workers describe that the CV, thus, contains 'no real occupation to state' (Alice) or 'no job-related experience at all' (Ann). Martha explained her use of the CV:

[The CV] is a good tool to create an overview. Some of my clients tell me: I can't anymore! I have been on the labour market my whole life and because of that, I drink, and my back is all screwed up. And then, when we work on the CV, then we see that it has been 15 years since you were on the labour market. And it is not to tease them, it is to say: Let's be real. What do we really have to work with. So, we don't peek around the bush all the time and can get a realistic picture and collaborate on the CV. So, I use it as an active tool.

(Martha)

The CV functions as a test of the clients' self-representation because the informational description compiled puts the client's expressed narrative information to the test. In the above quote, the social worker appears to devalue the narrative and social information in favour of the informational description pointing towards what previous research emphasises as the risk in social work practice of overlooking ambiguities and the why of clients' circumstances (De Witte et al., 2016; Gillingham, 2013; Parton, 2008). The digital CV, then, reveals to be a strategic way of testing the vulnerable position of the client.

Secondly, social workers also expressed that they could use the digital CVs strategically to reveal skills and resources the clients did not realise they had. For example, they explained that 'some of them may have more resources than they let on the first time around' (Nick) or gained competencies from internships they did not realise they could use before they compiled the CV. In this perspective, the CV adopts the function of a 'process-oriented

tool' (Martha) which views the clients' attitudes towards the labour market as something that can be reworked and redirected. Consider this quote from Zoe:

Zoe: I think the intention is that clients begin to relate to this [the CV] more and don't just go about thinking: 'That CV thing does not have anything to do with me and it will never have'. But they get to work on themselves mentally towards thinking more about it. I think a part of the intention is a mental reworking towards thinking 'my case is about jobs' when we work with people on their CVs.

Interviewer: Is that something you have experienced?

Zoe: In some situations. I think some people are just very estranged towards the labour market if it has been a long time since you've been out working. So in some cases I think it will take longer. But I still think there is a mental reworking somehow. I think this focus in casework is alright, because it is also easy to let the conversation be controlled by what occupies them right now. [...] So I think it is alright that I can say: 'Nice to hear about this and this' or 'that is too bad to hear, but let us also talk about the CV'. I think for me it is a tool that can pull back the conversation towards work, which is what I have to do. I am the job centre.

(Zoe)

Zoe exemplifies that the digital CV can accomplish a reworking of attitudes towards the labour market, which the social workers may utilise strategically by rejecting the social facts and focusing on the informational descriptions. This 'mental reworking' (Zoe) is mostly prominent when working with clients who in social workers' perceptions are less vulnerable and more resourceful. In welfare encounters the social workers may use the digital information recorded and stored in the digital CV strategically to rework clients' attitudes and reveal skills and resources, the clients did not realise they had.

Thirdly, social workers express difficulties with having to fit their work practices to the information systems when working with the most vulnerable clients. They might find ways of avoiding and adapting the information system to the needs of their clients. A social worker Rita explains that it is impossible to measure social work through an 'excel sheet' (Rita) that have to fit a specific systemic format because such a practice risks overlooking the clients' social problems and compromises the quality of work in her perception. Working with the most vulnerable clients, the social workers aim at adapting the digital CV to function as an internal document that offers an overview or aids the rehabilitation team in their efforts to assess the client's working capabilities. They function as 'presentational' (Ann) CVs and appear rather 'thin' (Ann) and it does not 'make sense in a case meeting to talk about jobs and the CV, when I know they are in a very different position and can barely

have a functioning everyday' (Ann). Thus, the social workers may reject the procedures of the information system in order to benefit their most vulnerable clients by changing the practice of recording and storing information. As a result, the social workers may avoid using the CV altogether because they want to avoid 'rip[ping] up traumas' (Liz) or 're-traumatising' (Liz) their clients. A social worker Karen exemplifies this challenge:

Karen: [...] having my group of clients in mind I am struggling to see the point, because it [the CV] is made for those who are ready for the labour market. If you create a CV and apply for jobs, well, then it makes tremendous sense because the companies can view your CV. But poor John, who sat on a bench for 20 years drinking beer and some vodka and what not. He is illiterate and what can he do? So we have to create a CV, but he cannot use it for anything. Well, not in the way it is meant to be used. And then it becomes a bit tricky for me how I should bring the client further. So I feel that I face an obstacle course sometimes with some of these tasks, which seem a bit foolish because they stand in the way of me getting the client further.

L: [...] these things that you must do that do not necessarily make sense for getting people closer to the labour market, as you say, well, how do you handle that, what do you do?

Karen: I have to say ... well ... Ehm... Oops, I forgot that I should do that [the CV].

(Karen)

Working with those clients who in social workers' perceptions are the most vulnerable, social workers may forget to complete the CV and thus resist the policy by the explanation that it does not fit practice with social workers. Thus, this is an example of deviant social work (Carey & Foster, 2011) which is valued positively by social workers because it benefits their clients because the CV does not make sense in their vulnerable positions. Hence, the social workers sought to benefit their clients by subverting established procedures for working with the digital CV tool. However, this professional act of everyday resistance may in turn compromise the organisational requirements for transparency of social work practice through detailed documentation.

Overall, this example from Schmidt (2023) shows that the digital CV may constrain the welfare encounter due to its focus on informational descriptions of clients' occupational biographies which overlooks ambiguities and clients' social stories. Nevertheless, the CV also shows to be an enabling tool in the welfare encounter as social workers may use the collected information strategically to rework client attitudes towards the labour market. Social workers may also resist structural procedures and constraints in order to benefit the most vulnerable clients by controlling which information is recorded in the

system. The analysis evinces that social workers discern between clients' vulnerabilities and attend to informational or social narratives depending on their perceptions of the client's vulnerabilities. These findings demonstrate that the digital CV comprises an important aspect of the welfare encounter because it directs the interaction and the relationship between the social worker and the client. It is integrated into the everyday practices of the job centre, comprising a mundane technology which shapes and is shaped by social work practices. Finally, this example also shows that strategic choices, such as strategically testing the clients' expressed vulnerable positions, using digital tools to rework clients' attitudes towards the labour market or bending rules, become available for social workers when they use mundane technologies in their work.

Conclusion

This chapter has foregrounded mundane technologies in social work practice and offered an example of one such technology and its use in a welfare encounter with vulnerable clients. The example used stems from the author's doctoral research² but other studies could also have been chosen, as mundane technologies are integrated into everyday life routines of society in a myriad of ways. For example, in [Plesner and Justesen's \(2022\)](#) study, the authors argue that digital-ready legislation is a mundane phenomenon because of its less spectacular and unexciting characteristics that brings powerful and significant changes to policy, organisational structure and practices. They term this phenomenon 'the dark sides of digitalization' ([Plesner & Justesen, 2022](#), p. 150) precisely because of its mundane characteristics that escape popular and scholarly attention but bring about changes for the organisation of the public sector. This chapter supports such a definition and has endeavoured to foreground mundane technologies in social work with vulnerable clients – shedding light on the dark side of the mundanity of digitalisation.

The chapter looked into ICTs, specifically information systems and how these are used by social workers in welfare encounters with vulnerable clients. It was emphasised that opportunities and challenges of digitalisation are inextricable which may bring forward both helpful changes for social work practices but also create risks and tensions. The chapter delved into a key discussion surrounding information systems which highlights that information technology changes the way social workers store, record and select information about their clients' valuing informational descriptions in favour of clients' social and narrative explanations. This practice may produce constraints on social work practice which can be managed by developing strategies to avoid, bend and reshape the technology and, thereby, exhibit small professional everyday acts of resistance. Such acts denote social workers' attempts to bend rules and regulations to ensure quality of work and benefit

their clients, such as for example the most vulnerable clients in social workers' perceptions.

The example used serves to illustrate how a mundane technology – a simple information system, the digital CV – may direct the welfare encounter and provide strategic choices for social workers which both constrains and enables social work practices. It sheds light on the ordinary and unnoticeable character of the simple digital tool and demonstrates the significance of it for the everyday practices of social workers with vulnerable clients. Future studies could continue the examination of mundane technologies and the importance they hold in supporting and reproducing the everyday life in public sector organisations, including the exclusionary mechanisms digitalisation encompasses. This may also delve deeper into ways of including and engaging vulnerable citizens in the public sector and its development. This brings me to the final piece of this chapter which is implications for practice and policy.

Implications for practice and policy

Firstly, this chapter suggests that there is a difference in practice depending on social workers' perceptions of clients' vulnerabilities. Future practice could use these findings to deliberate and tailor local social work practices to include and utilise mundane technologies with attention to clients' vulnerabilities. Such attention might enhance the clients' opportunity for agentic engagement in their own cases in public institutions. Vulnerable citizens may then be included and engaged through tailored use of mundane technologies in welfare encounters.

Secondly, this chapter also elucidates through the empirical example that mundane technologies may overlook clients' social narratives and value informational descriptions that fit systemic categories. As shown in the example and through previous studies (see e.g. [Huuskonen & Vakkari, 2015](#); [Løberg, 2023](#)), this practice may be problematic for social workers who may find ways to rearrange and reassemble clients' social narratives and bend rules and regulations to fit the realities of practice as well as intentionally or unintentionally select and control certain information to benefit clients. The managerial level in job centres and other public institutions may use these insights to adjust and reconsider organisational expectations and regulations to better fit the realities and challenges of social work practices in everyday life and welfare encounters with vulnerable clients.

Thirdly and finally, this chapter has attempted to shed light on the dark sides of mundanity, inspired by [Plesner and Justesen \(2022\)](#). It is important to direct more attention to those sides of digitalisation that are unremarkable and unexciting. Some degree of darkness, understood as e.g. technological obscurity and complexity, is unavoidable in and inextricably part of

digitalisation (Plesner & Justesen, 2022, p. 149). Foregrounding mundane digital technologies and the power and significance these hold for the organisation of the public sector is an important debate to uphold. For practice, it is important to continue bringing to light the inextricable effects of mundanity so that social work and policy may advance the understanding and significance of everyday life.

Notes

- 1 All quotes and the analytical points are adapted from Schmidt (2023). For a full version of the article's analysis, methodology and theoretical framework, see the published article.
- 2 The example used is adapted from a published paper by Schmidt (2023) which is part of the doctoral thesis by the same author (see Schmidt, 2024 for the full thesis).

References

- Burton, J., & van den Broek, D. (2009). Accountable and countable: Information management systems and the bureaucratization of social work. *British Journal of Social Work*, 39(7), 1326–1342. <https://doi.org/10.1093/bjsw/bcn027>
- Carey, M., & Foster, V. (2011). Introducing 'deviant' social work: Contextualising the limits of radical social work whilst understanding (fragmented) resistance within the social work labour process. *British Journal of Social Work*, 41(3), 576–593. <https://doi.org/10.1093/bjsw/bcq148>
- Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Sage Publications.
- Christensen, M., Frederiksen, A. B., & Madsen, K. B. (2022). What kind of social work in what kind of virtual space? *Nordic Social Work Research*, 12(3), 339–349. <https://doi.org/10.1080/2156857X.2021.1999309>
- De Witte, J., Declercq, A., & Hermans, K. (2016). Street-level strategies of child welfare social workers in Flanders: The use of electronic client records in practice. *British Journal of Social Work*, 46(5), 1249–1265. <https://doi.org/10.1093/bjsw/bcv076>
- Dourish, P., Graham, C., Randall, D., & Rouncefield, M. (2010). Theme issue on social interaction and mundane technologies. *Personal and Ubiquitous Computing*, 14(3), 171–180. <https://doi.org/10.1007/s00779-010-0281-0>
- Feldman, G. (2022). Disruptive social work: Forms, possibilities and tensions. *The British Journal of Social Work*, 52(2), 759–775. <https://doi.org/10.1093/bjsw/bcab045>
- Gillingham, P. (2013). The development of electronic information systems for the future: Practitioners, 'embodied structures' and 'technologies-in-practice. *British Journal of Social Work*, 43(3), 430–445. <https://doi.org/10.1093/bjsw/bcr202>
- Goffman, E. (1969). *Strategic interaction*. Basil Blackwell Oxford.
- Greenwood, M., & Cox, J. W. (2023). Seduced by technology? How moral agency is mediated by the invisibility of everyday technologies. *Organization Studies*, 44(4), 523–543. <https://doi.org/10.1177/01708406221107455>
- Helsper, E. J., & Reisdorf, B. C. (2017). The emergence of a "digital underclass" in Great Britain and Sweden: Changing reasons for digital exclusion. *New Media and Society*, 19(8), 1253–1270. <https://doi.org/10.1177/1461444816634676>
- Høybye-Mortensen, M. (2015). Social work and artefacts: Social workers' use of objects in client relations. *European Journal of Social Work*, 18(5), 703–717. <https://doi.org/10.1080/13691457.2014.930816>
- Huuskonen, S., & Vakkari, P. (2015). Selective clients' trajectories in case files: Filtering out information in the recording process in child protection. *British Journal of Social Work*, 45(3), 792–808. <https://doi.org/10.1093/bjsw/bct160>

- Järvinen, M., & Mik-Meyer, N. (2012). *At skabe en professionel: Ansvar og autonomi i velfærdsstaten* (1st ed., Vol. 2). Hans Reitzels Forlag.
- Leszczynski, A. (2020). Digital methods III: The digital mundane. *Progress in Human Geography*, 44(6), 1194–1201. <https://doi.org/10.1177/0309132519888687>
- Lindgren, I., Madsen, C. Ø., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, 36(3), 427–436. <https://doi.org/10.1016/j.giq.2019.03.002>
- Løberg, I. B. (2021). Efficiency through digitalization? How electronic communication between frontline workers and clients can spur a demand for services. *Government Information Quarterly*, 38(2). <https://doi.org/10.1016/j.giq.2020.101551>
- Løberg, I. B. (2023). Assessments of digital client representations: How frontline workers reconstruct client narratives from fragmented information. *Journal of Public Administration Research and Theory*, 33(1), 19–29. <https://doi.org/10.1093/jopart/muac017>
- Løberg, I. B., & Egeland, C. (2023). ‘You get a completely different feeling’—an empirical exploration of emotions and their functions in digital frontline work: ‘Du får en helt annen feeling’—en empirisk undersøkelse av følelser og deres funksjon i digitalt førstelinjearbeid. *European Journal of Social Work*, 26(1), 108–120. <https://doi.org/10.1080/13691457.2021.2016650>
- López Peláez, A., Pérez García, R., & Aguilar-Tablada Massó, M. V. (2018). e-Social work: Building a new field of specialization in social work? *European Journal of Social Work*, 21(6), 804–823. <https://doi.org/10.1080/13691457.2017.1399256>
- Matarese, M. T., & Caswell, D. (2018). ‘I’m gonna ask you about yourself, so I can put it on paper’: Analysing street-level bureaucracy through form-related talk in social work. *British Journal of Social Work*, 48(3), 714–733.
- Michael, M. (2003). Between the mundane and the exotic time for a different socio-technical stuff. *Time & Society*, 12(1), 127–143.
- Michael, M. (2006). How to understand mundane technology: New ways of thinking about human-technology relations. In J. R. Dakers (Ed.), *Defining technological literacy: Towards an epistemological framework* (1st ed., pp. 49–63). Palgrave Macmillan. <http://ebookcentral.proquest.com/lib/kbhnhh-ebooks/detail.action?docID=3>
- Mik-Meyer, N. (2017). *The power of citizens and professionals in welfare encounters: The influence of bureaucracy, market and psychology*. Manchester University Press.
- Nordesjö, K., Scaramuzzino, G., & Ulmestig, R. (2022). The social worker-client relationship in the digital era: A configurative literature review. *European Journal of Social Work*, 25(2), 303–315. <https://doi.org/10.1080/13691457.2021.1964445>
- Parton, N. (2008). Changes in the form of knowledge in social work: From the ‘social’ to the ‘informational’? *British Journal of Social Work*, 38(2), 253–269. <https://doi.org/10.1093/bjsw/bcl337>
- Pink, S., Ferguson, H., & Kelly, L. (2022). Digital social work: Conceptualising a hybrid anticipatory practice. *Qualitative Social Work*, 21(2), 413–430. <https://doi.org/10.1177/14733250211003647>
- Pink, S., & Sumartojo, S. (2018). The lit world: Living with everyday urban automation. *Social and Cultural Geography*, 19(7), 833–852. <https://doi.org/10.1080/14649365.2017.1312698>
- Plesner, U., & Husted, E. (2020). *Digital organizing*. Red Globe Press.
- Plesner, U., & Justesen, L. (2022). The double darkness of digitalization: Shaping digital-ready legislation to reshape the conditions for public-sector digitalization. *Science Technology and Human Values*, 47(1), 146–173. <https://doi.org/10.1177/0162243921999715>
- Ragnedda, M., Ruiu, M. L., & Addeo, F. (2022). The self-reinforcing effect of digital and social exclusion: The inequality loop. In *Telematics and Informatics* (Vol. 72). Elsevier Ltd. <https://doi.org/10.1016/j.tele.2022.101852>

- Schmidt, A. (2023). Strategic information: A qualitative study on the use of digital curriculum vitae for social work with vulnerable clients. *British Journal of Social Work*, 53(6), 3164–3180. <https://doi.org/10.1093/bjsw/bcad094>
- Schmidt, A. (2024). The mundane in the digital: A qualitative study of social work and vulnerable clients in Danish job centres. Copenhagen Business School [PhD]. PhD Series No. 14.2024. <https://doi.org/10.22439/phd.14.2024>
- Schou, J., & Hjelholt, M. (2018). Digital citizenship and neoliberalization: Governing digital citizens in Denmark. *Citizenship Studies*, 22(5), 507–522. <https://doi.org/10.1080/13621025.2018.1477920>
- Steiner, O. (2021). Social work in the digital era: Theoretical, ethical and practical considerations. *The British Journal of Social Work*, 51(8), 3358–3374. <https://doi.org/10.1093/bjsw/bcaa160>
- Steyaert, J., & Gould, N. (2009). Social work and the changing face of the digital divide. *British Journal of Social Work*, 39(4), 740–753. <https://doi.org/10.1093/bjsw/bcp022>
- Strier, R., & Breshntling, O. (2016). Professional resistance in social work: Counter-practice assemblages. *Social Work (United States)*, 61(2), 111–118. <https://doi.org/10.1093/sw/sww010>
- Tummers, L., & Rocco, P. (2015). Serving clients when the server crashes: How front-line workers cope E-Government challenges. *Public Administration Review*, 75(6), 817–827. <https://doi.org/10.1111/puar.12379>
- van Deursen, A., & van Dijk, J. (2011). Internet skills and the digital divide. *New Media and Society*, 13(6), 893–911. <https://doi.org/10.1177/1461444810386774>
- Weinberg, M., & Banks, S. (2019). Practising ethically in unethical times: Everyday resistance in social work. *Ethics and Social Welfare*, 13(4), 361–376. <https://doi.org/10.1080/17496535.2019.1597141>

12

JUNIOR UNIVERSITY

A collaborative social innovation in education

Nina Tura and Aino-Maria Hakamäki

Introduction

There exists a need to innovate within current educational models to effectively address sustainability challenges (Herodotou et al., 2019). On a global scale, higher education institutes in particular have awakened to the call for increasing understanding and building skills and competencies to answer sustainability challenges (Castellanos & Queiruga-Dios, 2021). This has also affected science education, which has increasingly started to address issues such as climate change, the circular economy, and sustainability transitions (Gutierrez-Bucheli et al., 2022; Martin et al., 2022). Sustainability science education means developing the capability of evaluative system thinking in the context of science, technology, environment, and society (Zoller, 2012), considering the dynamic relationship between humans and the environment (Feinstein & Kirchgasser, 2015). This issue has, to some extent, been addressed in the higher education context (Gutierrez-Bucheli et al., 2022) but is largely neglected at lower school levels.

Social innovation in education focuses on reshaping educational systems for the common good (Conrad, 2015). It brings in 'non-traditional' educative actors, addresses societal challenges with regard to education, and empowers individuals to take new roles (Giesecke & Schartinger, 2024). For instance, socioeconomic background and parental education significantly influence educational choices, often leading children to follow similar career paths to their parents (OECD, 2021). This contributes to ongoing gender imbalances, particularly in fields like engineering. Despite the increasing emphasis on integrating science education across

all school levels (Douglas et al., 2016; Lee & Williams, 2020), particularly given that career decisions often begin as early as primary and middle school (Wyss et al., 2012), challenges such as limited teacher training, resources, and time make it difficult to achieve this goal (Hammack & Ivey, 2019). Addressing these barriers is essential to incorporating sustainability science standards, highlighting the need for social innovation in education.

This study focuses on the case of Junior University, a large-scale, award-winning education pilot in Finland which fosters sustainability science education in compulsory education. This study uses Junior University as an empirical example to highlight the most crucial elements in developing and implementing this type of collaborative social innovation in education. This issue is addressed through the research question: *What are the key success factors and challenges in developing and implementing an innovative approach to sustainability science education in compulsory education?*

The study combines insights from interviews with 24 informants representing key actors participating in the innovation actions: educators, local authorities, and actors from higher education. The study's findings, which revealed 11 success factors and eight key challenges, are organised into four dimensions: structural, economic, behavioural, and cognitive. These dimensions were experienced by the different network actors involved in the development and implementation activities of Junior University in three cities. The study's contribution to the literature on sustainable science education deepens our understanding of means of implementing and importance of improving sustainability science education in primary and secondary schools in an innovative and collaborative way. It also underscores the potential of social innovation in the educational field, offering a promising avenue for addressing socioeconomic differences and increasing the inclusiveness of higher and science education.

Literature background

Social innovation in education for sustainability

Social innovation is becoming even more important for economic growth (Nicholls et al., 2015), especially in meeting Sustainable Development Goals. Social innovations address social needs by improving practices in areas like working conditions, education, health, and community development (Mulgan et al., 2007; Phills et al., 2008), aiming to enhance quality of life. Social innovation occurs across public, non-profit, and private sectors (Murray et al., 2010), often requiring collaboration between

politics, markets, academia, and social enterprises (Mulgan et al., 2007). The most impactful social innovations combine existing elements, cross boundaries between organisational or disciplinary sectors, and build new relationships that foster further innovations. Key figures or “connectors”, such as school principals and heads of educational programmes, play a crucial role in linking ideas, resources, and the power of decision-making (Mulgan et al., 2007).

Although sustainability education is recognised as essential, many still lack adequate knowledge in this area (Staniškis & Katiliūtė, 2016). More efforts are needed to educate individuals about sustainability, as it provides the knowledge and skills and shapes the values required for a sustainable future (Holm et al., 2016; Rieckmann, 2018). Universities play a crucial role in advancing sustainable development by conducting research, providing technical expertise, educating, and engaging with society (Staniškis, 2016). Integrating sustainability topics into undergraduate education is also essential, especially in the fields of science and engineering which equip students to address sustainability challenges (Birdsall, 2013; Martin et al., 2022). However, sustainability science education at younger school levels is often neglected, even though it is essential to begin building these skills and values from childhood (Siraj-Blatchford & Pramling-Samuelsson, 2016).

The Finnish educational system and sustainability science education

Finland is known for its world-class education system and efforts in integrating sustainability into various levels of education (Jónsson et al., 2021). Finnish children’s educational journey begins in a pre-primary education (preschool) programme, followed by nine years of compulsory education, typically starting at age six or seven. Compulsory education comprises primary education (grades 1–6) and lower secondary education (grades 7–9). After this, students can pursue general upper secondary education (high school) or vocational education and training, with admission based on student records. Finnish education is cost-free, with over 85 per cent of students continuing to some form of post-compulsory education, mostly in higher education institutions.

Sustainable development principles are increasingly integrated into Finnish education, particularly in engineering, with recent efforts to extend these principles to lower education levels. Sustainable development and the UN’s Sustainable Development Goals are connected in the national core curriculum as important targets of education (Finnish National Agency for Education, 2024). However, the execution of education varies by locality and is very much dependent on teachers’ knowledge, expertise,

and available resources. Although sustainable development as a topic is acknowledged to require a multidisciplinary approach, the importance of science education is recognised, prompting innovative initiatives like the Junior University concept. This collaborative social innovation in education aims to enhance sustainability science education in primary and secondary schools by leveraging higher education expertise. Studying the success factors and challenges of this concept offers valuable insights into how to enhance sustainability education across educational levels and foster impactful social innovations in education.

Methodology

Introducing junior university

Lappeenranta Junior University, also known as Uniori, is a collaborative initiative between LUT University, the city of Lappeenranta, and local companies which has been recognised globally for its innovative approach ([Green gown awards, 2021](#)). Planning began in the 2017–2018 academic year, followed by a piloting in 2018–2019 ([Naukkarinen & Koikkalainen, 2020](#)). As of 2024, Junior University education covers all children in Lappeenranta, offering them several learning opportunities throughout their school journey from preschool to high school. Within Junior University, LUT University provides tailored learning modules based on its science, sustainability, and entrepreneurship expertise. The original concept inspired similar initiatives in Imatra (Universoma) and Lahti (JunnuUniversity), with slight variations to suit regional characteristics and possibilities. [Table 12.1](#) presents an overall view of the concept and its focus themes.

These initiatives emphasise collaboration among university staff, students, industry experts, and local teachers in developing teaching materials and conducting classes. A primary goal of Junior University is to provide equal educational opportunities for all children, irrespective of their parents' backgrounds or interests, thereby mitigating the socio-economic gap. By fostering interest in sustainability and science, Junior University enhances the city's brand image and facilitates community engagement.

Data collection and analysis

The research followed an explorative, qualitative case study approach. The data was collected through semi-structured interviews with individuals involved in developing and implementing the Junior University programme. Data collection took place over two

TABLE 12.1 Junior University Concept and Focus Themes

<i>Educational level</i>	<i>Pre-primary education</i>	<i>Primary education</i>		<i>Lower secondary education</i>	<i>Upper secondary education</i>
Level (average age - years)	Preschool (6)	3rd grade (9)	5th grade (11)	8th–9th grade (14–15)	High school (16–19)
Short description of activities	Children experiment, explore, and realise fun things related to nature, clean water, and recycling.	Children learn about clean water and the water cycle by experimenting and inventing.	Children learn working life skills and entrepreneurship and familiarise themselves with sustainable development (Lappeenranta). Children learn algorithmic thinking, programming, and robotics (Lahti).	Children learn about solutions for clean energy, sustainable living, and their carbon footprints and share opinions with experts and other young people.	Students learn a variety of topics related to sustainable science in school and by participating in workshop events organised on the university campus.
Examples of activities	Solving eco-secret police tasks (Lappeenranta). Studies of water purity using water research kits (Lahti).	Experiments with Veera waterdrop of the world of Pien-Saimaa (lake) (Lappeenranta). Recycling, household sorting, and circular economy activities (Lappeenranta, Imatra, Lahti).	Small entrepreneurs programme and starting small businesses together with classmates (Lappeenranta). Robotic programming (Lahti).	Using carbon footprint calculators and solving climate puzzles (Lappeenranta, Lahti). Participating in sustainable city development workshops (Lappeenranta, Imatra). Solving eco-mysteries together with LUMA (the natural sciences and mathematics centre) (Lahti).	Participation in open university “Climate action” course (Lappeenranta). Visiting LUT campus as part of Chemistry 1 course (Imatra). Participation in science event on campus, including multiple workshops (Lahti).

(Continued)

TABLE 12.1 (Continued)

<i>Educational level</i>	<i>Pre-primary education</i>	<i>Primary education</i>		<i>Lower secondary education</i>	<i>Upper secondary education</i>
Key themes	Energy Recycling Water	Clean water Circular economy (waste disposal and recycling).	Sustainable business and entrepreneurship.	Clean energy and sustainable living.	Sustainable engineering: e.g., physics and environment, energy transformation, chemistry and sustainable future, climate action.
Materials and events	Various learning and teaching materials: stories, music, games, fairy tales, research instruments.	Specialist-driven themed days at school (“Water Days”), waste sorting game, various digital teaching, and learning materials.	Teaching and learning materials, entrepreneurial event at LUT campus (one school day).	Interdisciplinary learning module and workshop day at higher education campus/LUMA.	Teaching and learning materials and courses provided by university. Events on campus.
Connection to existing lessons	Playing and learning.	Environmental science.	Environmental science, social studies.	Biology, chemistry, geography, mathematics, physics.	Philosophy, physics, chemistry, geography, mathematics, IT.

rounds: one in the spring of 2021, focusing on modules in Lappeenranta and Imatra, and one in the autumn of 2022, covering the programme's expansion to Lahti. Nineteen interviews were conducted with 24 informants from various backgrounds, ensuring representation from different stages of the programmes' development and implementation. Participants included principals (P1, P2), teachers (T3–T13), city officials (C14–C19), higher education professionals (H20–H24), providing a comprehensive perspective on the Junior University initiative. All of the informants, including teachers, participated in both the development and implementation of activities to some extent.

Both individual and group interviews were conducted via Microsoft Teams and were recorded and transcribed. The interviews covered four topics: (1) first impressions and motive for participation, (2) challenges experienced, (3) successes, and (4) experiences and feedback from other parties (teachers, students, parents, etc.). Depending on the interviewee's background, the focus varied slightly; for instance, coordinators discussed innovation broadly, while teachers focused on their involvement in module development. The goal was to gather comprehensive information within the given time constraints.

The data was analysed using content analysis following qualitative data analysis guidelines (Miles et al., 2014). After data collection, data reduction, display, conclusion drawing, and verification were performed. Open coding was employed initially to identify challenges and success factors among the different actor groups, followed by categorisation based on the identified factors' properties and characteristics. Emerging findings were compared with the existing literature to organise success factors and challenges into thematic categories, including structural, economic, behavioural, and cognitive aspects (e.g., Bostrom, 1970).

Findings – success factors and key challenges

The analysis revealed 11 success factors and eight key challenges in the development and implementation activities of Junior University. Based on further analysis, the identified success factors and challenges were categorised into four broad dimensions: structural, economic, behavioural, and cognitive.

Structural dimension

The structural dimension focuses on the organisation and governance of intra- and inter-organisational relationships. Identified success factors and key challenges in the structural dimension are summarised in [Table 12.2](#). Especially at Lappeenranta, the success of Junior University was related to the leaders'

TABLE 12.2 Success Factors and Key Challenges in the Structural Dimension

	<i>Success factors</i>	<i>Challenges</i>
Structural dimension	<p>Transparent governance Strong leadership driven by high desire, expertise, and networks to lead innovation work and find the right people. Establishing common policies on ownership and responsibilities. <i>“The essential thing in terms of success is to find the right people at the school, there must be motivation, desire, and enthusiasm” (H20).</i></p>	<p>Vague governance Unclear responsibilities and lack of concrete agreements. Dependency on single actors. <i>“In the beginning there were also challenges, there were no clear people with responsibility” (C18).</i></p>
	<p>Equality and continuity Ensuring educational equality and continuity of operations by binding activities to the curriculum. <i>“We also strengthen educational equality. We show a concrete path to university, even for children from backgrounds with no model of higher education in their family. This is also an egalitarian operating model” (C14).</i></p>	<p>Lack of operational continuity Challenges ensuring the continuity of operations in the future due to the short-term nature of the development projects and dependence on individuals volunteering. <i>“The teachers are paid for organising teaching, but for everyone else, participating is more or less a voluntary activity. This voluntariness and permanence is a difficult concept” (C15).</i></p>
	<p>Strategic alignment Alignment of activities to the strategies of the actors involved. <i>“Both city and higher education organisations have seen this as important. They are ready to provide resources” (C19).</i></p>	<p>Need for commitment and governmental support Challenges getting commitment and support from multiple actors within a network and government. <i>“It’s quite difficult, you need the combination of both the city and the university” (H20).</i></p>

strong desire, expertise, and motivation (individual or group) in guiding the development and crucial first stages of the innovation process.

N.N. has done a great job involving quite a large number of teachers. He has done the preparatory work very inclusively.

(T14)

In Lahti and Imatra, meanwhile, identifying the right people was vital. Transparent governance, with clear policies and responsibilities, generally drove successful implementation. Conversely, vague governance hindered development, leading to conflicts and a lack of operational continuity.

We may not have considered the fact that it also requires a lot of effort from LUT. At no point was there a discussion about their investment in it.
(C16)

All actors identified challenges related to the lack of operational continuity, including the short-term nature of the project and its reliance on volunteers. Binding activities to the educational curriculum was crucial for educational equality and continuity, requiring strong strategic commitment, especially from the city.

We have succeeded in making this not just available to the chosen few, but to all the children in Lappeenranta.
(P1)

To provide this for every student, it needs to be included on the curriculum. The content is related to the topics and themes of the courses studied.
(T13)

Strategic alignment with actors' strategies, as seen in Lappeenranta's and Lahti's plans for green/sustainable city development and the University's strategic approach to leading sustainable renewal, was identified as a success factor. However, this posed challenges due to the increased effort required to ensure commitment and governmental support.

Economic dimension

The economic dimension is connected to investments, outputs, externalities, and value creation for the various actors involved in the activities. A summary of the factors within the economic dimension is shown in [Table 12.3](#). Resourcing, highlighted by all actors, emerged as a critical factor affecting the success of implementation efforts. Adequate time, funding, and personnel were deemed essential for success, alongside intelligent resource management.

Resources are a clear success factor and also a challenge to obtain! Especially paid working time. We have the city's strategic financing.
(C13)

A long-term perspective on resourcing was especially emphasised, including the varying and limited resources across contexts (such as the availability of

TABLE 12.3 Success Factors and Key Challenges in the Economic Dimension

	<i>Success factors</i>	<i>Challenges</i>
Economic dimension	<p>Sufficient resources Resourcing enough money, time, and personnel for the work. Reasonable and intelligent management of resources. <i>“It is financially sustainable. This is not a project, it’s an activity of a permanent nature, which is meant to continue until the end of the world” (H17).</i></p> <p>Equal value creation Value creation and showing the benefits from the perspective of each of the actors involved. <i>“Increasing the educational level of the City of Lahti. Providing equal opportunities for all and encouraging people towards higher education” (C19).</i></p>	<p>Limited resources Varying resources across different contexts and challenges identifying the amounts of resources needed. <i>“It’s not really the size of the school, but how many devices the students have. At our school, all students have a personal Chromebook. It makes it a lot easier to do these things. ... Then in other schools where they don’t have personal devices it is much harder. But that probably also depends on the implementation method” (T10).</i></p>

technological devices in schools). For example, in Lahti, this issue was partly resolved by providing city-sponsored learning kits (including e.g., tools and materials for water experiments) for all preschool groups in the city. Equal value creation, demonstrating benefits for all involved parties, was identified as a key success factor, enhancing motivation and investment. For instance, the Junior University initiative in Lappeenranta benefitted the city by nurturing sustainability-aware citizens and future entrepreneurs, while also promoting the attractiveness and diversity of higher education science studies.

Integration of an entrepreneurial attitude, so that new SME entrepreneurs might emerge from this generation in this area.

(C14)

Behavioural dimension

The behavioural dimension of success factors and challenges revolves around the actors’ activities, routines, and communicative practices. The findings in this dimension are summarised in [Table 12.4](#). A supportive innovation culture was acknowledged to guide the successful development of the concept. Informants acknowledged that supporting independent and creative work was crucial but also caused extra stress. Thus, balancing strict guidelines, creativity, and

TABLE 12.4 Success Factors and Key Challenges in the Behavioural Dimension

	<i>Success factors</i>	<i>Challenges</i>
Behavioural dimension	<p>Supporting innovation culture Inspiring and supporting an innovation culture, including room for freedom and creativity. <i>“I’m very satisfied that we have such a management culture. School communities are strong expert organisations, and we try to give them as much room as possible, for example in how they implement the curriculum” (C14).</i></p> <p>Practical implementation Development of well-structured and clear materials that are connected to real-life topics. <i>“I like the idea that real things from the university world can also be brought to preschoolers; you don’t have to think that the children should just play in the yard and with water, but you can bring in the science aspect. After all, it is a really important thing for children and young people, making them aware that they are studying real, important things, not ‘just’ playing” (P2).</i></p> <p>Close and open collaboration Commitment and close collaboration between the actors involved. Clear roles and responsibilities, open communication, and an inspirational spirit. <i>“The commitment and partnership from both sides is really strong. It is probably also one success factor and a basic pillar for this work of ours” (C14).</i></p>	<p>Balancing activities Finding the balance between strict guidelines, creativity, and freedom. <i>“Teachers would like someone to come and give them a ready-made package. But then we noticed from the feedback that the finished package did not undergo nearly as much additional research as the circular economy module, which the teachers carried out themselves from start to finish; it was kind of more successful” (T5).</i></p> <p>Unclear guidelines and lack of education Contextual differences and challenges seeing the big picture due to the varying guidelines and lack of education for teachers. <i>“One of my colleagues from another school quite often called me to ask what this means, and what to do” (T10).</i></p> <p>Inefficient collaboration Unclear responsibilities, forms of collaboration, and challenges related to communication between actors. <i>“There should be more cooperation with business, for example ... so that our teachers are also aware of what society and working life will require of our children in the future. ... The point is that there are certain themes that are not so easy to implement in teaching. For example, entrepreneurship education” (C14).</i></p>

freedom posed difficulties. Well-structured materials linked to existing studies, topics, and research were seen as crucial for long-term success. However, unclear guidelines and a lack of education hindered implementation, especially for teachers who were not involved from the beginning. Challenges also arose in terms of understanding the overarching concept.

“It has been polished to such a degree that there are actually lesson plans and guides for teachers ... I would argue that it is also a meaningful way of teaching for the teacher” (T8).

This is quite a large entity. Especially for teachers who have not been involved in the development work, it must be quite confusing. It’s a pretty big and broad entity to understand.

(T9)

Furthermore, collaboration and communication activities were key to success, with an emphasis on commitment, clear roles, open communication, and inspiration. However, inefficient collaboration and unclear responsibilities led to conflicts and communication challenges among actors.

“Even though the city’s willingness to engage with the project is strong and they want to invest in it, every time we have asked how to take things forward and who should do it, something is missing. The city should take responsibility for getting this thing implemented” (H24).

Cognitive dimension

The cognitive dimension encompasses various psychological aspects which influence innovation work, including knowledge, values, attitudes, beliefs, and perceptions. Findings in this dimension are summarised in [Table 12.5](#). These factors were crucial for the concept’s success and require high internal motivation and inspiration to carry out the work. As one informant noted,

The internal motivation of the actors has been high. In a manner of speaking, the love for the activity has been visible.

(P1)

Participants, including teachers, higher education staff, city council members, and business representatives, engaged voluntarily, driven by their passion for the activities. Positive attitudes and feedback from participating students and their parents fuelled enthusiasm and contributed to the concept’s international recognition and positive reputation.

“There is also value in the image. This is something unique and new, and as it is also useful, we can talk about social innovation and pioneering” (C15).

TABLE 12.5 Success Factors and Key Challenges in the Cognitive Dimension

	<i>Success factors</i>	<i>Challenges</i>
Cognitive dimension	<p>Internal motivation High motivation and sufficient interest to voluntarily take part in development and implementation activities. <i>“This kind of development work has been really rewarding, a change from my own work as well” (T9).</i></p> <p>Positive feedback Ensuring feedback is received from different actors and taken into account in development and implementation. <i>“It has been quite rewarding to see how much the students have liked it and the teachers have gotten excited” (P2).</i></p> <p>Timely and important topics Focusing on important topics with a social and educational component. Connecting the topics to the needs of the actors involved. <i>“One small group got really enthusiastic about the circular economy period and that they get to teach their parents about this issue” (T5).</i></p>	<p>Increased stress Increased stress due to changing work duties and feelings of inadequacy. <i>“Yes, and then the fact that when you feel guilty that you haven’t done enough, N.N. just says that you have, that you shouldn’t stress unnecessarily, that this is going just fine, but still...” (T7).</i></p>

Moreover, the relevance of sustainable development as a central theme of the concept resonated with participants’ values and societal needs, driving the innovation’s success. As one informant mentioned,

The subject is important; the environment and its well-being are, of course, important. But [it is even more important] that there is an opportunity to influence all the children of this city on how they relate to that subject.

(T5)

On the other hand, challenges in the cognitive dimension were also identified, including increased stress among participants, particularly teachers, due to changing work duties and feelings of inadequacy. These stressors

highlighted the need for support and adaptation to alleviate pressure and ensure continued success. As one teacher noted,

As my work involves doing a lot all the time, and maybe this kind of design work is a very different type of work, then sometimes when things maybe don't progress in the same way, you might feel stressed and that you haven't done enough.

(T6)

Discussion

Junior University responds to two issues: the need to increase the attractiveness of university science education and to enhance science teaching in primary and secondary schools. By integrating university-level science education into the curricula of local schools, Junior University aims to foster children's interest in higher education, particularly in engineering, while also improving awareness of science studies, sustainable development, and entrepreneurship. The goal is to help reduce the impact of socio-economic differences and make higher and engineering education more inclusive.

This innovative approach aligns with the dimensions of social innovation highlighted in prior research (e.g., Mulgan, 2007), as it fosters collaboration between academia, local authorities, and industry and combines existing educational elements in novel ways, including, for example, the utilisation of an open university course on climate action as an integrated part of higher education courses and the organisation of university-led innovation workshops, usually targeted at business actors, for children in the fifth grade. Moreover, Junior University promotes interdisciplinary collaboration among experts to address sustainability goals. It engages students in real-life innovation projects (e.g., regarding regional sustainability), enhancing their understanding of societal needs and the role of science in addressing them.

Junior University's key success factors were linked to acknowledging the fundamental barriers to implementing science education at primary and secondary school levels, such as lack of time, knowledge, training, and resources, as highlighted by previous research (Blanchard et al., 2013; Cartwright, 2014; Hammock & Ivey, 2019). Teachers' knowledge gaps are bridged through close collaboration with university experts, and supporting materials and guidance are provided. This collaboration significantly lowers the barriers to implementing new standards in the curriculum. Moreover, the commitment of all parties involved, including local authorities, ensures sufficient resources and value creation for all the actors involved, including administrative support, highlighted as a crucial factor by Hammock and Ivey (2019). By closely aligning different actors and connecting activities to

the curriculum, Junior University enhances commitment and practical implementation, contributing to its success in achieving equality and continuity goals.

Despite the multiple success factors identified in the study, the findings also revealed multiple challenges. Structural challenges, such as vague governance and operational continuity, must be addressed to ensure the sustainability of similar initiatives. Additionally, concerns were raised regarding contextual differences and the need for standardised guidelines to support the broad implementation of innovative practices. Acknowledging these challenges is vital to improving current efforts and supporting the development of future social innovations in education and ensuring their successful implementation on a larger scale.

To address the effects of the socioeconomic gap in higher and science education participation, this study provides an example of how social innovation may be employed to instigate positive bottom-up change. Equal and universal access to higher education needs to be complemented by action to positively reinforce awareness of and attitudes towards higher education participation during the early stages of the educational path. Furthermore, the results show that Junior University and its approaches can significantly raise awareness of environmentally sustainable action among the wider community. Educational and awareness-building actions targeted at students support them in championing sustainability awareness and action to enable bottom-up community transformation. This anecdotal evidence corroborates the hopeful claim by [Aksoy et al. \(2019\)](#), among others, that innovations for sustainability and enterprises that collaborate with other ecosystem actors can make critical contributions to achieving Sustainable Development Goals.

While this study focuses on Junior University in Finland, it stands as a compelling example of collaborative innovation for sustainability in education. Its success can spark discussions on similar impactful collaborations. Further empirical research is necessary to fully grasp the dynamics of educational innovation processes. Social innovations in education are crucial for addressing sustainability challenges and nurturing future engineering experts. This study underscores the significance of sustainability science education across all education levels, and we urge future researchers to explore different approaches and models. Moreover, examining how models like Junior University impact girls' interest in engineering education warrants further investigation.

Implications for practice and policy

Junior University represents an innovative educational model that fosters collaboration between universities, industry, and local education systems. This model is specifically designed to provide tailored sustainability, science, and

entrepreneurship education. It represents a pioneering blueprint for reshaping science education towards sustainability while empowering students with essential skills to tackle global challenges. It underscores the importance of integrating sustainability into science education at all levels and broadening participation in science education.

Practitioners and policymakers can draw upon the success factors and challenges identified in this study to develop social innovations in education that cross the borders of compulsory and higher education. By fostering collaboration among educators, administrators, and policymakers, barriers to innovation can be lowered, and educational initiatives can be designed and implemented effectively to ensure their continuity and impact. This study emphasises the need for concerted efforts to promote equal access to education and raise awareness of sustainability, entrepreneurship, and science among students from diverse backgrounds, laying the foundation for a more sustainable future.

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References

- Aksoy, L., Alkire, L., Choi, S., Kim, P. B., & Zhang, L. (2019). Social innovation in service: A conceptual framework and research agenda. *Journal of Service Management*, 30(3), 429–448.
- Birdsall, S. (2013). Reconstructing the relationship between science and education for sustainability: A proposed framework of learning. *International Journal of Environmental and Science Education*, 8(3), 451–478.
- Blanchard, M. R., Osborne, J. W., Wallwork, C., & Harris, E. S. (2013). Progress on implementing inquiry in North Carolina: Nearly 1000 elementary, middle and high school science teachers weigh in. *Science Educator*, 22(1), 37–47.
- Bostrom, R. N. (1970). Affective, cognitive, and behavioral dimensions of communicative attitudes. *Journal of Communication*, 20(4), 359–369.
- Cartwright, T. (2014). Confronting barriers to teaching elementary science: After-school science teaching experiences for preservice teachers. *Teacher Education & Practice*, 27(2/3), 464–487.
- Castellanos, P. M. A., & Queiruga-Dios, A. (2021). From environmental education to education for sustainable development in higher education: A systematic review. *International Journal of Sustainability in Higher Education*, 23(3), 622–644.
- Conrad, D. (2015). Education and social innovation: The youth uncensored project—A case study of youth participatory research and cultural democracy in action. *Canadian Journal of Education*, 38(1), 1–25.
- Douglas, K. A., Rynearson, A., Yoon, S. Y., & Diefes-Dux, H. (2016). Two elementary schools' developing potential for sustainability of engineering education. *International Journal of Technology and Design Education*, 26(3), 309–334.

- Feinstein, N. W., & Kirchgasser, K. L. (2015). Sustainability in science education? How the next generation science standards approach sustainability, and why it matters. *Science Education*, 99(1), 121–144.
- Finnish National Agency for Education (2024). Pedagogy that supports sustainable development in general education. Available at: <https://www.oph.fi/en/education-and-qualifications/pedagogy-supports-sustainable-development-general-education>
- Green Gown Awards (2021). 2021 International Green Gown Awards Winners. Available at: <https://www.greengownawards.org/2021-international-green-gown-awards-winners>
- Gutierrez-Bucheli, L., Kidman, G., & Reid, A. (2022). Sustainability in engineering education: A review of learning outcomes. *Journal of Cleaner Production*, 330, 129734.
- Hammack, R., & Ivey, T. (2019). Elementary teachers' perceptions of K–5 engineering education and perceived barriers to implementation. *Journal of Engineering Education*, 108, 503–522.
- Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D. (2019). Innovative pedagogies of the future: An evidence-based selection. *Frontiers in Education*, 4, 113.
- Holm, T., Sammalisto, K., Caeiro, S., Rieckmann, M., Dlouha, J., Wright, T., Ceulemans, K., & Benayas, J. (2016). Developing sustainability into a golden thread throughout all levels of education. *Journal of Cleaner Production*, 117, 1–3.
- Jónsson, Ó. P., Guðmundsson, B., Øyehaug, A. B., Didham, R. J., Wolff, L.-A., Bengtsson, S., Lysgaard, J. A., Gunnarsdóttir, B. S., Árnadóttir, S. M., Rømoen, J., Sund, M., Cockerell, E., Plummer, P., & Brückner, M. (2021). Mapping education for sustainability in the Nordic countries. TemaNord, no. 2021:511, Nordic Council of Ministers, Copenhagen. Available at: <http://dx.doi.org/10.6027/temanord2021-511>
- Lee, C. K., & Williams, P. H. (2020). Engaging elementary students in energy sustainability: A service-learning project by preservice elementary teachers. *Journal of Service-Learning in Higher Education*, 10.
- Martin, M. J., Diem, S. J., Karwat, D. M., Krieger, E. M., Rittschof, C. C., Bayon, B., ..., & Mahmoud, H. (2022). The climate is changing. Engineering education needs to change as well. *Journal of Engineering Education*, 111(4), 740–746.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage Publications.
- Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). *Social innovation: What it is, why it matters, how it can be accelerated*. University of Oxford, Young Foundation.
- Murray, R., Caulier-Grice, J., & Mulgan, G. (2010). *The open book of social innovation*. Young Foundation.
- Naukkari, J. K., & Koikkalainen, K. M. (2020). WIP: All-inclusive Outreach: A Long-term Cooperation Process between a Finnish Mid-sized University and a Mid-sized Town. Paper presented at 2020 ASEE Virtual Annual Conference. [10.18260/1-2--35522](https://doi.org/10.18260/1-2--35522)
- Nicholls, A., Simon, J., & Gabriel, M. (2015). Introduction: Dimensions of social innovation. In *New frontiers in social innovation research* (pp. 1–26). Palgrave Macmillan.
- OECD (2021). *Education at a Glance 2021: OECD indicators*. OECD Publishing.
- Phills, J. A., Deiglmeier, K., & Miller, D. T. (2008). Rediscovering social innovation. *Stanford Social Innovation Review*, 6(4), 34–43.
- Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. *Issues and Trends in Education for Sustainable Development*, 39, 39–59.

- Siraj-Blatchford, J., & Pramling-Samuelsson, I. (2016). Education for sustainable development in early childhood care and education: An introduction. In *International research on education for sustainable development in early childhood* (pp. 1–15). Springer.
- Staniškis, J. K., & Katiliūtė, E. (2016). Complex evaluation of sustainability in engineering education: Case & analysis. *Journal of Cleaner Production*, *120*, 13–20.
- Wyss, V. L., Heulskamp, D., & Siebert, C. J. (2012). Increasing middle school student interest in STEM careers with videos of scientists. *International Journal of Environmental & Science Education*, *7*(4), 501–522.
- Zoller, U. (2012). Science education for global sustainability: What is necessary for teaching, learning, and assessment strategies? *Journal of Chemical Education*, *89*(3), 297–300.

13

PLAY, PLAN, PARTICIPATE

Bridging education for sustainable development with children's participation through gaming

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Introduction

Engaging young citizens in understanding and shaping their urban environments is crucial for the long-term success of sustainability initiatives. To this effect, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has developed a roadmap called “Education for Sustainable Development (ESD) for 2030” that seeks to empower citizens to make informed choices and take both individual and collective action to support societal change and care for the planet (UNESCO, 2020). Public participation in sustainable urban planning can be facilitated by using serious games, which are designed to simulate real-life situations where citizens are given the opportunity to explore possible solutions and be involved in decision-making (Angelidou & Psaltoglou, 2019). Compared to games, serious games are designed for a specific goal other than mere entertainment, for example, for learning or training (Scurati et al., 2020). These games are valuable as they allow citizens to understand how city planners come to decisions and the different factors they must consider (Stokes, 2020). Research has shown that serious games foster higher levels of engagement and learning in contrast to conventional knowledge transfer methods (e.g., lectures, reading, and writing), by leveraging the concept of “learning by doing” (i.e., experiential learning) and incorporating context-based goals, visualisation, storytelling, or role-playing (Bakhanova et al., 2020). In this way, serious games can facilitate critical thinking and increase the knowledge of participants regarding various urban issues while motivating them and keeping them engaged with the matter at hand. By enabling players to make decisions and making them aware of the consequences of their choices, serious games can facilitate learning and empower participants to contribute to the sustainable transformation of their cities (Coakley & Garvey,

2015). The learning dimension is considered of utmost relevance when addressing children's participation, as underlined by Roger Hart (1992) in his adaptation of Arnstein's ladder of participation (Arnstein, 1969). To be able to engage in processes that are initiated by adults, children have to be able to understand what is expected of them and why their participation matters. One of the most difficult tasks for urban planners is to transfer enough knowledge to the children, which is essential to engage them in a meaningful way. Serious games provide a practical and interactive platform through which children can learn about the complexities of urban planning and how to plan sustainable cities. A successful example of the use of serious games to foster children's participation in decision-making for urban planning is the integration of game-based learning (GBL) approaches in schools (de Andrade et al., 2020). Through serious games, children can be taught the various concepts related to the sub-topics of urban development, including infrastructure management, environmental protection, and community engagement (Razali et al., 2022). Through these games, children can develop a deeper understanding of the challenges and opportunities in their cities and come up with innovative ideas and solutions.

This chapter aims to answer the following research question: which design principles underpin the development of a gamified learning environment that could engage children in sustainable urban planning processes?

Following the steps of design science research (DSR) methodology, we demonstrate the research and design process of an online game prototype that integrates the concepts of sustainable urban development as the foundation of participatory processes. It contributes to the existing body of knowledge by providing insights into how serious games can be co-designed by academics, planners, and children themselves to better capture the interest and contribution of younger audiences in complex topics such as urban sustainability. During the design process, the emphasis was placed on learning, usability, and user engagement to ensure that the designed game prototype not only teaches the children about sustainability principles but also encourages their active involvement in sustainable urban development. Moreover, it examines the game's connection to the United Nations Sustainable Development Goals (SDGs) using an official scoring system based on Key Performance Indicators used by municipalities in Norway (Smiciklas et al., 2017).

The findings and discussion presented in this chapter hold significance not only for academics in the fields of urban planning, sustainability, and educational technology but also for practitioners, including urban planners, policymakers, and educators. The iterative testing and refinement of the game prototype allowed us to bridge theory and practice, offering insights into how serious games can be designed to support both educational and participatory objectives. The fact that the game prototype presents real-life urban planning scenarios and provides feedback on social, economic, and environmental impacts presents an example of how this approach can engage the next generation in sustainable city development.

Methodology

To answer the research question of which principles underpin the development of a gamified learning environment that could engage children in sustainable urban planning processes, the use of DSR methodology is justified. DSR is a research method that involves designing innovative artefacts and testing them for practical applications to generate new knowledge about an identified problem (Peffer et al., 2007). The development of a serious game for children's understanding and participation in sustainable urban development involves several key steps. Firstly, the researchers must identify the specific problem or challenge that the artefact aims to solve. Then, a literature review is conducted to search for information on the particular topic and identify solutions that have been designed for a similar purpose. The researchers also consult with experts in urban development, education, and game design to ensure that the game prototype aligns with best practices and pedagogical theories to maximise its learning potential. In addition, the researchers would redesign and develop the game prototype, taking into consideration the needs and preferences of the target audience (children).

By following the steps of DSR, researchers can design and develop a digital solution that specifically addresses the issues related to children's participation in sustainable urban development. The iterative nature of the DSR process also allows for continuous improvement and refinement of the game based on user feedback, ensuring its relevance and effectiveness in addressing the identified challenges. With the pressing need to make cities more sustainable, the use of the DSR methodology is beneficial as it ensures that the proposed solution is not only theoretically relevant but also effective in solving real-world problems (Peffer et al., 2007). Moreover, the emphasis of DSR on bridging the gap between theory and practice is central to this research, as it allows for the development of a digital solution that is firmly anchored in the practical needs of sustainable urban development. The following section outlines the six activities of the DSR methodology used in this research (Figure 13.1) and the results of each activity will be discussed in the fourth section.

Activity 1: Problem identification and motivation. Outline the specific research problem and justify the importance of a solution. To identify the problem and lay the foundations of this study, the researchers conducted a

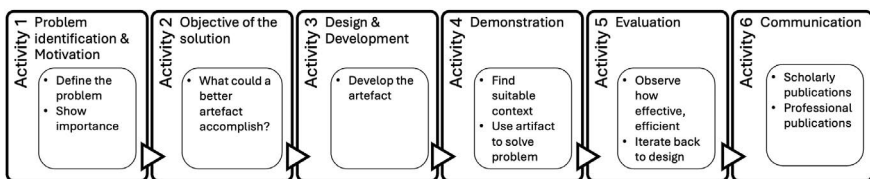


FIGURE 13.1 Steps of the design science research methodology as defined by Peffer et al. (2007)

thorough analysis of the current challenges and issues linked to children's participation in sustainable urban development. This analysis involved a review of existing literature, discussions with planners and policymakers, and observations of relevant participatory processes that used a gamified approach.

Activity 2: Define the objectives for a solution. Infer the objectives of a solution that can address the shortcomings identified in Activity 1. The practical goal of a better artefact was to provide planners with a digital tool to engage children in participatory processes. The type of solution was decided to be a digital game to facilitate the children's understanding of sustainable urban planning processes. To develop a prototype, a specific development framework for GBL solutions (LEAGUE framework) was chosen to define the game's characteristics and ensure alignment with educational goals.

Activity 3: Design and development. Create the artefact. Conceptually, a design research artefact can be any designed object in which a research contribution is embedded in the design. The characteristics of the game were defined based on an adequate development framework identified in Activity 2.

Activity 4: Demonstration. Demonstrate the use of the artefact to resolve one or more aspects of the problem. This could involve its use in experimentation, simulation, case study, or other appropriate activity. This was accomplished through supervised user testing in a real learning environment (i.e., with pupils in classrooms).

Activity 5: Evaluation. Observe and measure how well the artefact supports a resolution of the problem. This activity requires the evaluation of the objectives of a solution against the actual results that emerge from the use of the artefact in the demonstration. This was done by combining observations in the classroom and results from a post-test questionnaire.

Activity 6. Communication. Communicate the problem and its importance, and present the artefact, its utility and novelty, the background for its design, and its effectiveness to researchers and other relevant audiences, such as practising professionals, when appropriate.

Based on those steps, the first game prototype was developed and tested in 2021 (Senior et al., 2023, 2025). As part of the iterative process of the DSR methodology, the results from observations and evaluations of the first game prototype informed the development of the second prototype, which is presented in this chapter.

Results

Problem identification and motivation

As a starting point for this research, the researchers conducted a thorough analysis of the current challenges and issues related to children's

participation in sustainable urban development processes identified in the literature and a comparable gaming solution. This analysis involved a review of existing literature, consultation with planners and policymakers, and observations of relevant participatory processes. In addition to the challenges presented in the introduction, namely in recruiting participants and ensuring that they have sufficient understanding of the complex concepts behind sustainable urban planning, our literature review on participatory processes revealed a lack of focus on the participants' needs and benefits (Senior et al., 2023). To explore existing solutions for engaging children in planning, we also conducted an empirical study of the UN-Habitat programme "Block by Block" using Minecraft to co-create cities with children. The programme follows a structured process: the local urban planners are first trained by the UN-Habitat team in using Minecraft and then in charge of building themselves the models they wish to use to collect citizens' input. Then, they organise a co-creation workshop where they present the purpose and method of the participatory process and give participants access to the Minecraft model and let them model their ideas. In the end, the participants collectively prioritise design ideas with urban planners. After the workshop, the urban planners oversee the preparation of planning proposals based on the citizens' ideas and present them to the local community before sending them to the municipal decision-makers. Using the popular game Minecraft as a tool to engage children in urban planning represents an innovative approach to involving younger generations in the shaping of their urban environments (de Andrade et al., 2020). The programme was run in Oslo, Norway, in 2021–2022, and authors of this chapter conducted two semi-structured interviews with the district's urban planner, in charge of the revitalisation project that the programme was collecting input for, and the participation coordinator who led the participatory process. In addition to these interviews, conducted before the co-creation workshop, the district's urban planning office was also involved in teaching activities at the researchers' institution during the same period. The "Block by Block" programme was also discussed, and regular updates were given as part of this collaboration. Finally, on the day of the co-creation workshop, led by the district's urban planning office and two employees of the UN-Habitat "Block by Block" programme, researchers conducted observations of the room. We noted that helping participants to visualise and redesign public spaces in their communities could encourage a sense of engagement and ownership. However, despite its creative engagement strategy, the "Block by Block" programme has some limitations. A primary shortcoming is the necessity for training urban planners to effectively use Minecraft as a planning tool. This condition forms an obstacle to broader adoption and limits the programme's scalability. Besides, the process of modelling existing city environments within the Minecraft platform is both time-consuming and

resource-heavy, which reduces the initiative's practicality across diverse urban settings. Furthermore, a critical dimension that the programme does not adequately address is sustainability. The lack of explicit focus on sustainable urban development within the game means that it falls short of educating participants about crucial aspects of environmental, social, and economic sustainability in urban planning. This omission is a significant gap, considering the increasing importance of sustainable practices in contemporary urban development, even more so when the goal is to facilitate children's participation, which requires a heavy focus on giving them sufficient knowledge and understanding of the process.

Objective of the solution

The objectives of the solution that would engage children in the sustainable urban development process were defined in direct connection with the shortcomings identified in the Block-by-Block method and the focus areas of the UNESCO "ESD for 2030" roadmap as shown in [Table 13.1](#).

TABLE 13.1 Objectives of the Artefact Based on the Shortcomings Identified in the Block-by-Block Method

<i>Shortcomings of the Block-by-Block method</i>	<i>UNESCO "ESD for 2030" focus areas</i>	<i>Proposed objectives of the artefact</i>
Need for training the planners	Accelerating local level action	The artefact should provide planners with a digital tool that they could use in participatory processes without prior training required, using pre-existing resources (e.g., 3D model of the city).
Abstracted version of the reality that needs to be modelled in Minecraft	Transforming learning environments	The artefact should use realistic 3D representation of the children's own city to foster a sense of responsibility towards their local environment.
Children don't receive feedback on how their choices influence the urban sustainability	Empowering and mobilising youth	The artefact should include an education component to ensure that children have sufficient understanding of sustainable urban planning process in accordance with Roger Hart's (1992) ladder of children participation.

The purpose of an educational game is to deliver the desired learning outcome; therefore, thought-out planning is essential to achieve this goal. Early in the development process, it is important to identify who the target users of the game will be, how to present the learning content in a way that is suitable for them, and which game elements to use. To achieve the targets of GBL and satisfy the requirements and aptitudes of the target users, it is important to rely on existing frameworks that structure and assess the design of educational games. The LEAGUE framework (Learning, Environment, Affective-cognitive reactions, Game factors, Usability, usEr) was deemed relevant for developing our prototype because of its comprehensive and holistic methodology and its practicality (Tahir & Wang, 2020). It incorporates important features such as pedagogical effectiveness, player engagement, evaluative mechanisms, interactive design, reaction, and environmental adaptability. Unlike other frameworks that solely focus on educational content or game mechanics, the LEAGUE framework prioritises educational outcomes while still ensuring the game is engaging and enjoyable. The focus on user-centred design and adaptable environments makes it applicable to various learning contexts. Furthermore, the iterative nature of the LEAGUE framework allows for continuous refinement, aligning with the evolving needs of educational technology and enhancing its effectiveness as a tool for creating impactful learning games.

Design and development of the artefact

During this phase, the goal was to design the game components. Based on the LEAGUE framework, the following characteristics shown in Table 13.2 were defined.

The choice of the game design was guided by the benefits of scenario-based simulation for GBL and participatory planning (Lin & Hou, 2016). The game was created by implementing the 3D maps provided by the municipality into the game engine without the need to remodel, thereby preserving the realistic visualisation of the city that the children are familiar with (Figure 13.2).

The scenarios were designed by the researchers to fit into four different categories of urban planning, namely road and transportation, residential buildings, urban nature, and public space. Each of these categories included four different scenarios, scoring differently on the overall sustainability of the city, as shown in Table 13.3. The scenarios were intentionally developed to reflect extreme situations to easily show their different impacts on sustainability. The sustainability scoring system was developed based on the United 4 Smart and Sustainable Cities KPI methodology (Smiciklas et al., 2017), which was currently in use by the municipality at the time.

To ensure that children have a sufficient understanding of sustainable urban planning in accordance with the ladder of children participation (Hart, 1992), the game provides feedback on how their decisions influence the overall

TABLE 13.2 Characteristics of the Solution According to the Structure of the LEAGUE Framework

<i>LEAGUE dimensions</i>	<i>Explanation</i>	<i>Artefact</i>
Learning	Decide goals and purpose in terms of knowledge and skills the game intends to transfer to users	Decision-making in sustainable urban development
Environment	Decide the technological environment for the game	Web game (using Unity and WebGL), supported on desktop computers and mobile devices
Reaction	Decide the reactions you would like to generate through the game	Cognitive and behavioural
Game design	Decide the game genre	Scenario-based
Usability	Decide the usability goal of the game	Easy to use and intuitive
User	Decide the target players of the game	Children (ages 8–12), planners, and teachers

sustainability of their city. When playing the game, the players are invited to experiment with multiple combinations of scenarios in all categories and the impact of their decisions is displayed in the form of gauges corresponding to each sustainability pillar and friendly figures changing “mood” according to their level of satisfaction (Figure 13.3).

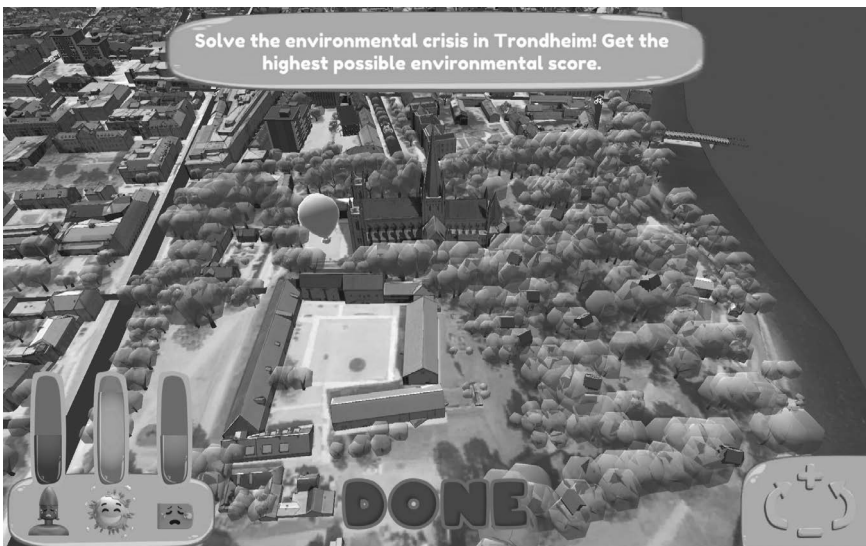
**FIGURE 13.2** Game interface based on the municipality's 3D maps

TABLE 13.3 Scenarios of Urban Transformation within Each Category

	<i>Road and transportation</i>	<i>Residential buildings</i>	<i>Urban nature</i>	<i>Public space</i>
Scenario 1	All roads are open; all types of vehicles are allowed to drive in the city.	We help people to improve all the existing buildings and we build more small houses.	Create botanical gardens in every street corner.	Build a zero-emission positive energy Tivoli on the main square.
Scenario 2	All roads should only be used by cyclists, pedestrians, skaters, skiers, etc.	Help people to improve all the existing buildings and we build collective buildings where we reserve some apartments for people who have less money so that more people can live in the city at a decent price.	Seasonal urban agriculture, blue corridors, and fountains.	Build a big skatepark on the main square.
Scenario 3	All roads may only be used by electric vehicles.	Build super powerhouses that provide energy for all neighbours.	Build treetop houses in the city.	Build a giant ice rink.
Scenario 4	All roads shall only be used by public transport and delivery vehicles. Local residents have a special-access permit.	Transform all the buildings into houses and apartments. Everyone can live in the city centre now because there is enough room.	Plant trees everywhere there's room to create urban forests.	Build an outdoor gym.










	Sad [0 to 9]	Neutral [10 to 15]	Happy [16 to 20]
Social			
Environmental			
Economic			

FIGURE 13.3 Friendly characters designed for representing sustainability pillars scores

Demonstration

At this stage, the potential of the artefact in addressing the challenges of engaging children in sustainable urban development processes was tested. The artefact (i.e., game prototype) was demonstrated to three different audiences: the research team, municipal staff (including urban planners, the participation coordinator, and the head of the sustainable education programme), and three 7th-grade classes from two different local schools. The preliminary demonstration of the prototype took place internally within the research team to reveal technical issues and identify areas of improvement both in terms of gameplay but also in terms of content to ensure the relevance and clarity of the scenarios. The demonstration to the local municipal staff was conducted through two separate online meetings, one with the local participation coordinator and the head of the sustainable education programme and the other with the participation coordinator and the urban planner involved in the “Block by Block” programme in Oslo.

The demonstration to the three classes took place as part of the Norwegian Research Council’s annual science festival “Researcher Sprint” (Norwegian University of Science and Technology, 2022) during which researchers from the university visit local schools to introduce pupils to their research. User testing was conducted during the 2022 edition, where researchers visited three classrooms at two elementary schools in Trondheim and presented the ByMaker prototype. A total of 73 children aged 11–12 in one international and two Norwegian classrooms took part in a 45-minute session which included an *introduction*, a *pre-live survey*, a *game session*, a *discussion*, a *post-live survey*, and a *design activity*. The user testing session was planned as shown in Figure 13.4, and individual activities are described in more detail below.

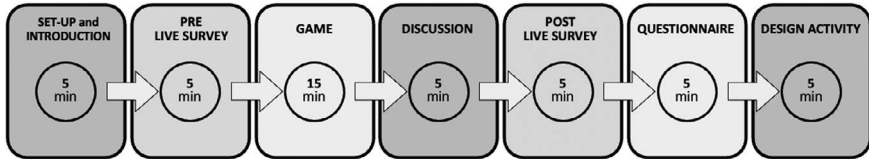


FIGURE 13.4 The distribution of the 45-minute user testing session

In the *introduction* part of the session, researchers briefly described the project and invited the pupils to use Mentimeter to participate in the pre- and post-live surveys.

The *pre-live survey* served as a test of children’s prior knowledge and understanding of sustainable development and was integrated into the presentation to engage the children and keep their attention. It included the following four questions:

- 1 Which word comes to your mind when you hear about “sustainable development”?
- 2 What do you think we can do to make the city more “sustainable”?
- 3 What is the most important for a sustainable city? Multiple choice between a. all three are important; b. environment (planet); c. social (people); d. economy (money).
- 4 Do you think “environmentally friendly” and “sustainable” mean the same? Multiple choice between a. no and b. yes.

These questions helped the researchers to understand the children’s prior knowledge in terms of the desired learning outcome and see whether the children associate the term sustainable development with solely the environmental aspect. The pre-survey conducted prior to the gameplay session indicated a solid understanding of environmental considerations, while the social and economic ones remained abstract.

The desired learning outcome for the session was for the children to understand that sustainable development is not only the environmental considerations but a balance between the environmental, social, and economic aspects of sustainability.

The presentation was followed by a *game session*. A period of 15 minutes was dedicated to this activity, taking into consideration that some children would finish the first round faster and others might take longer to find the right combination of choices that would increase the environmental score. After playing for 7 minutes, the researchers presented the right combination of scenarios for the first round (i.e., the combination that would give the highest environmental score). This way, everybody could proceed to the second round. Children played the second round, where the goal was to find the

combination of scenarios that would keep the balance between the environmental, social, and economic aspects. Those who finished faster were handed the user experience and motivation questionnaire, keeping them engaged, while others were still trying to find the right combination to obtain a balance between the three sustainability pillars.

The *user experience and motivation questionnaire* were designed to measure the overall satisfaction with the user interface and user experience and the motivation and desire to play the game. We also included a question about how nice it was for the children to play the game on the map of their own city.

The game session was followed by a *discussion*, where the correct combination of scenarios from the second round was reviewed collectively, and two questions were asked using Mentimeter (i.e., repeated questions 3 and 4 from the pre-live survey). The answers to these questions, together with the scores given on the user experience and motivation questionnaire, formed the results of the *post-live survey*.

The test was wrapped up with a *design activity*, giving the children the opportunity to share their ideas (i.e., draw or write them on the worksheet provided) for scenarios that should be used in the future development of the game.

Evaluation

The evaluation phase focused on observing and measuring how well the artefact supports a solution to the problem. At least two researchers involved in the development of the artefact were present in each demonstration session to observe the pupils' reactions and identify areas of improvement. Due to the limited time between each session, the users' feedback was collected and compiled in a document to be addressed at the end of the demonstration period to inform the development of the next prototype. Feedback from the adult users (i.e., researchers and municipal staff) included written and oral comments on the game's interface, gameplay, and content, while feedback from the pupils was collected via observations and interactions with the researchers in the classroom as well as a paper questionnaire. Results from the questionnaire are divided into two categories: one related to the user experience and the other related to their motivation to learn by playing the game. A Likert-type scale was used where participants were asked to rate their experiences on a range of items, with the following endpoints: from 0 (strongly disagree) to 4 (strongly agree) for items assessing user experience (e.g., ease of use, enjoyment of gameplay, clarity of instructions); and from 0 (not at all motivated) to 4 (highly motivated), capturing participants' enthusiasm and engagement with the game. In all three sessions the average values for user experience and motivation scored above the median. This reflects a certain level of satisfaction from the pupils. The highest values are found in session 3,

which might be explained by a greater engagement of the teacher in the classroom who had prepared the pupils in advance and actively helped the researchers to supervise the session.

Communication

In accordance with the DSR methodology, the results were communicated to the extended research team and the future recipients of the artefact, as well as international academic audiences to receive comments and feedback to refine the design principles of the next prototype.

Discussion and conclusion

This study aimed to answer the following research question: which design principles underpin the development of a gamified learning environment that could engage children in sustainable urban planning processes? Using a DSR methodology, an innovative online game prototype for children, *By-Maker*, was developed to raise awareness about the importance of balancing social, economic, and environmental dimensions in the future development of their own cities. This approach revolved around three of the five main focus areas of the UNESCO “ESD for 2030” roadmap: transforming learning environments, building the capacity of educators, and empowering and mobilising youth (UNESCO, 2020). The main contribution of our research lies in the application of the DSR methodology to the development of a gamified learning environment to engage children in sustainable urban planning. Through this process, we not only created a game prototype that could address the shortcomings identified in participatory processes but also identified key design principles to develop solutions that support children’s participation in complex sustainable urban planning processes. By engaging children in understanding and shaping their urban environment, they can become decision-makers, taking part in sustainability and environmental actions to build the city they want to live in. According to Roger Hart’s (1992) ladder of children participation, adults who engage with children have a responsibility to ensure that they are sufficiently informed and understand the purpose of the participatory process and must provide them with the tools they need to express their opinions. In the context of participatory planning, this responsibility is placed on the planners, who often lack training and access to appropriate tools to run these processes. Serious games have emerged as a powerful tool for engaging younger citizens in various aspects of society, including urban planning and development (Angelidou & Psaltoglou, 2019). The following section presents design principles to guide the future development of such serious games aimed at engaging children in sustainable urban planning.

To harness the potential of game based learning, it is important to select an adequate framework. In our study, the LEAGUE framework allowed us to systematically integrate learning goals, user engagement, and experiential learning into the design process. This represents a methodological advancement by demonstrating how a structured game design framework can be applied to teach sustainability concepts in the context of participatory urban planning. This aligns with ESD's goal of transforming learning environments by promoting innovative and interactive tools for sustainability education.

To address the shortcomings of existing solutions, the design process must be iterative and provide room for comments and feedback from the potential users and beneficiaries of the solution. ByMaker is the result of a dialogue with the local urban planners, researchers, and children, ensuring that critical insights into the usability of the prototype were obtained and allowed us to test the potential of the gamified environment to spark children's interest and motivation to engage in sustainable urban planning. Additionally, from the technical aspect, our approach based on the use of existing 3D maps and pre-built scenarios enhances the capacity of educators and planners by providing them with a practical tool that can easily be used in the classroom and integrated into participatory planning processes without prior training.

The integration of real-world 3D maps of the children's local environment instead of abstracted models introduces a novel approach that is more scalable and relatable for children. While several simulation games use an abstracted version of reality or an imaginary setting (e.g., Minecraft, SimCity), ByMaker relies on a realistic 3D representation of the children's own city. This contributes to fostering a sense of responsibility towards their local environment and motivates them to act quickly on the mission that is given to them (e.g., solving the environmental crisis and making the city more sustainable). This shortened the gameplay session to 15 minutes, allowing us to keep children's attention and engagement. Interactive elements, such as popular landmarks and friendly characters representing sustainability pillars, made the learning environment more relatable, yielding positive results in terms of user experience and motivation. Finally, opting for scenario-based decision-making and real-time feedback as the main elements of the game also brings children closer to the reality of sustainable urban development, as a similar approach is used by municipalities and sustainability experts to guide their predictions and decisions (e.g., Agenda 2030, Intergovernmental Panel on Climate Change's report). ByMaker contributes to youth empowerment, another core element of UNESCO's ESD approach, by positioning children as active participants in sustainable urban planning and ensuring that they have sufficient knowledge to come up with suggestions to transform their local environment.

Implications for practice and policy

Results from this study can be used to improve the inclusion of children in sustainable urban planning processes. A variety of stakeholders could benefit from adopting a similar approach to gamification and game design. Pre-built solutions, like ByMaker, which require no specific training, can help municipal planners to effectively engage younger citizens in sustainable urban development, saving time and resources. For educators, ByMaker provides a hands-on tool to teach sustainability within the context of the pupils' local environment. Incorporating this game into the curriculum can bridge classroom learning with real-world urban challenges, allowing children to understand the impact of their decisions on their communities and teach them to balance social, economic, and environmental factors. Additionally, while ByMaker offers a ready-to-use solution, by following a similar collaborative and iterative design process, municipalities and schools that wish to create tailored solutions for their unique needs can co-develop or modify existing tools in partnership with researchers, enhancing their relevance and educational impact. Further research is needed to validate the results of this study in other urban and cultural contexts.

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References

- Angelidou, M., & Psaltoglou, A. (2019). Social innovation, games and urban planning: An analysis of current approaches. *International Journal of Electronic Governance*, 11(1), 5–22. <https://doi.org/10.1504/IJEG.2019.098807>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/10.1080/01944366908977225>
- Bakhanova, E., Garcia, J. A., Raffe, W. L., & Voinov, A. (2020). Targeting social learning and engagement: What serious games and gamification can offer to participatory modeling. *Environmental Modelling & Software*, 134, 104846. <https://doi.org/10.1016/j.envsoft.2020.104846>
- Coakley, D., & Garvey, R. (2015). The great and the green: Sustainable development in serious games. In *European Conference on Games Based Learning* (pp. 135–143). Academic Conferences International Limited PP – Reading. <https://www.proquest.com/conference-papers-proceedings/great-green-sustainable-development-serious-games/docview/1728409742/se-2?accountid=12870>
- de Andrade, B., Poplin, A., & de Sena, Í. S. (2020). Minecraft as a tool for engaging children in urban planning: A case study in Tirol Town, Brazil. *ISPRS International Journal of Geo-Information*, 9(3). <https://doi.org/10.3390/ijgi9030170>

- Hart, R. (1992). Children's participation: From tokenism to citizenship. In *UNICEF: Innocenti essays* (Vol. 4). International Child Development Centre. http://www.unicef-irc.org/publications/pdf/childrens_participation.pdf
- Lin, Y. H., & Hou, H. T. (2016). Exploring young children's performance on and acceptance of an educational scenario-based digital game for teaching route-planning strategies: A case study. *Interactive Learning Environments*, 24(8), 1967–1980. <https://doi.org/10.1080/10494820.2015.1073745>
- Norwegian University of Science and Technology. (2022). Forskersprinten 2022. *Forskingsdagene*. (retrieved 20.02.2024). <https://www.ntnu.no/forskingsdagene/forskersprinten>
- Peppers, K., Vegas, L., Tuunanen, T., Rothenberger, M. A., & Vegas, L. (2007). *A design science research methodology for information systems research*. October 2021. <https://doi.org/10.2753/MIS0742-1222240302>
- Razali, N. E. M., Ramli, R. Z., Mohamed, H., Mat Zin, N. A., Rosdi, F., & Mat Diah, N. (2022). Identifying and validating game design elements in serious game guideline for climate change. *Heliyon*, 8(1), e08773. <https://doi.org/10.1016/J.HELIYON.2022.E08773>
- Scurati, G. W., Ferrise, F., & Bertoni, M. (2020). Sustainability awareness in organizations through gamification and serious games: A systematic mapping. *Proceedings of the NordDesign 2020 Conference, NordDesign 2020*. <https://doi.org/10.35199/norddesign2020.1>
- Senior, C., Loewen, B., & Temeljotov Salaj, A. (2025). The science of play. In M. Vukmirovic, A. Djukic, E. V. Lazarevic, & A. K. Furundzic (Eds.), *Digital dreams, urban realities: Crafting sustainable, inclusive and beautiful cities. The urban book series*. Springer. <https://link.springer.com/book/9783031763526>
- Senior, C., Temeljotov Salaj, A., Cepuran, A., Gabriela Diaconu, M., & Johansen, A. (2023). Sustainable decision-making game for the next generation of smart citizens. *IOP Conference Series: Earth and Environmental Science*, 1196(1), 012087. <https://doi.org/10.1088/1755-1315/1196/1/012087>
- Smiciklas, J., Prokop, G., Stano, P., & Sang, Z. (2017). *Collection methodology for key performance indicators for smart sustainable cities*. <https://unece.org/DAM/hlm/documents/Publications/U4SSC-CollectionMethodologyforKPIfoSSC-2017.pdf>
- Stokes, B. (2020). *Locally played: Real-world games for stronger places and communities*. The MIT Press. <https://direct.mit.edu/books/monograph/4862/Locally-PlayedReal-World-Games-for-Stronger-Places>
- Tahir, R., & Wang, A. I. (2020). Codifying game-based learning: Development and application of LEAGUE framework for learning games. *Electronic Journal of E-Learning*, 18(1), 69–87. <https://doi.org/10.34190/ejel.20.18.1.006>
- UNESCO. (2020). Education for sustainable development: A roadmap. In *The Global Education 2030 Agenda*. <https://doi.org/10.54675/YFRE1448>

PART IV

Conclusion



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14

A FRAMEWORK FOR ENGAGEMENT FROM THE NORDICS

Tuomas Ahola, Nina Tura and Ville Ojanen

Six key perspectives for citizen engagement

This chapter concludes this book by presenting *Framework for engagement the Nordics*. The framework is developed based on research reported in the 13 chapters included in this book as well as research carried out during the NordForsk-funded research project Citizens as Pilots of Smart Cities (2020–2024). In the following, we present six perspectives that synthesize many of the insights and recommendations presented in the individual chapters. We link these perspectives to individual chapters of this book and summarize the discussion of each perspective in form of conclusions.

Multi-method

Urban development involves a vast variety of citizen groups. For example, the development of a new children’s hospital is not only relevant for children, but also for their parents, and employees of the hospital such as doctors and nurses. Based on the evidence presented earlier ([Senior et al., 2023](#); [Toukola & Ahola, 2022](#); see also [Chapters 2](#) and [5](#)), it is evident that no single method of engagement is able to successfully incorporate the knowledge, needs and insights of diverse citizen groups. It is quite likely that the medical staff can be successfully engaged in the design process through various (carefully planned and facilitated) workshop sessions that focus on how they work in the various spaces in the building and use the various resources provided by it. Potentially, questionnaires may be used to collect certain information, e.g. needs for personal storage space and parking space. However, the actual

customers of the children's hospital, that is, children requiring medical care now or in the future, are not likely to be willing or able to participate in developmental workshops. Neither are they likely to answer paper-based or emailed questionnaires. Instead, children might be motivated to visit two or three alternative patient rooms using virtual-reality goggles and point of things that they like or dislike. Or perhaps, children might be motivated to design alternative playgrounds for the hospital using a 3D modeling application such as Minecraft (Delaney, 2022). The parents of children requiring medical care are a yet different matter. Depending on their age, capabilities in using digital technologies, or their preferences in voicing their concerns, their ideas and needs can be included in the design process, but not likely with any single involvement method. Accordingly, we draw the following conclusion.

Conclusion 1: Complex urban development efforts call for the simultaneous use of multiple methods for involving various citizen groups.

Tailored

Urban development initiatives are not a homogeneous group but vary greatly. Examples of different kinds of initiatives could include the requirement for a digital cv for the unemployed (Chapter 11), a participatory budgeting process (Chapter 8), or the development of a new city area by the waterfront (Chapter 6). Such initiatives differ considerably regarding their scope, duration, cost estimate, as well as involved stakeholders. Accordingly, there is no – and should not be – one single way of how to engage citizens with the development initiative. Instead, the portfolio of engagement approaches should be tailored individually for each initiative. One key consideration is how much emphasis should be placed on each phase of the project life cycle, including ideation, planning, implementation and use. In general, the greatest opportunities to influence the scope of the initiative occur during the ideation and planning phases. However, the implementation and use phases can also provide valuable insights on how the initiative should be executed and how its use can be optimized to deliver greater benefits to citizens. Another key consideration is the depth of participation (discussed in Chapter 2). Superficial methods are typically more cost-effective and easier to scale for large citizen groups, but they rarely lead to major changes in the project scope. In contrast, methods like demonstration projects and certain types of workshops can facilitate a more valuable dialogue between citizen groups as well as citizens and municipal

decision-makers but come at a much greater cost. Accordingly, we draw the following conclusion.

Conclusion 2: The methods for involving citizens need to be tailored to match the salient characteristics of each urban development effort.

Knowledge-based

Based on the chapters included in this book as well as the research carried out in the CaPs research project, it is evident that in the Nordics, municipal decision-makers who are responsible for various urban development efforts are highly motivated to engage citizens in the development efforts. However, we observed that many of the engagement methods used are rather ad-hoc in character (Chapter 2) and their effectiveness is highly dependent on the specific expertise and experience of the individual decision-maker (or team of decision-makers) and other resources available (Chapters 8 and 9). We found that oftentimes, the engagement methods do not, to a significant extent, build on the existing scientific body of knowledge on citizen engagement. Frequently, the efforts also not build on experiences of similar development initiatives in other Nordic municipalities. While it is understandable that those responsible for citizen engagement often have many other responsibilities and can only dedicate limited time to designing engagement methods, the research presented in this book suggests that the effectiveness – and particularly the consistency – of engagement could be significantly improved. This could be achieved by fostering greater sharing of experiences and practices among municipal decision-makers and strengthening the connection between citizen engagement and academic research carried out in the field. Hence, we offer the following conclusion.

Conclusion 3: Forums for sharing experiences of citizen engagement amongst municipal decision-makers, along with shared repositories of such experiences, are likely to increase the effectiveness of citizen engagement efforts in urban development. Connecting these efforts with academic research and researchers can further enhance their impact supporting access to latest scientific knowledge on the topic.

No one left behind

The use of digital technologies provides vast opportunities for effectively and efficiently engaging with citizens in urban development initiatives. After the

questions and measurement scales have been developed, online surveys for thousands of respondents may be set up in hours – if not in minutes. Three-dimensional prototypes of buildings may be visited by citizens through virtual reality with no need to build expensive physical models. Location information may be used to accurately measure how citizens move in their urban areas to understand, e.g. which areas they favor or avoid. At the same time, this rapid wave of digitalization has given rise to new kinds of discrimination against specific citizen groups. In certain countries, nontransparent computer algorithms are already used in central decision-making processes, such as those involving welfare benefits. In addition, not all citizens have the knowledge and/or resources to effectively utilize various forms of digital services that are available. In case, the participation in urban development initiatives is possible through digital channels only; we will effectively deny groups of citizens the possibility for participation. This form of discrimination was discussed by Schmidt (2023; Chapter 11). Accordingly, when choosing participation methods, we need to take into account the specific needs of disadvantaged citizen groups (e.g. the elderly, the unemployed) as well, even though this is likely to increase the costs of participation. Consequently, we offer the following conclusion:

Conclusion 4: When selecting participation methods for urban development initiatives, we must consider the needs and requirements of disadvantaged citizen groups.

Nordic added value

The Nordic countries are characterized by a high degree of openness in municipal decision-making processes. In addition, a high percentage of citizens are highly educated. Collaboration between municipalities, universities and business actors is also very active. These characteristics provide several advantages for smart and sustainable urban development in comparison to many other parts of the world. The research reported in this book showcases many examples of collaboration that was successful largely due to the willingness of multiple individuals from municipalities, the academia and the business sector to come together and work on complex challenges posed by the focal development initiatives. For example, the development of Fjordbyen in Lier (Chapter 6) demonstrates how researchers supported the process of planning and implementing various citizen engagement methods in the development of a high-quality urban area. The development of Junior University initiatives in Lappeenranta, Lahti and Imatra are examples of complex collaboration efforts between the city, academia and business to ensure equal

opportunities for all children to develop skills to be informed decision-makers in the future (Chapter 12). We refer to this open fluent collaboration as Nordic Added Value. Nordic Added Value is not a necessary precondition for successfully engaging with citizens in development initiatives, rather it functions as catalyst that supports the achievement of superior outcomes. It is of paramount importance that policymakers acknowledge these benefits and strive to further strengthen them. Thus, the following conclusion:

Conclusion 5: The Nordic context currently offers several advantages that facilitate effective engagement of citizens in urban development efforts.

The youth

If there is one group that is particularly central for developing our societies to become smarter and more sustainable, that is the youth. The children of today will be the decision-makers of tomorrow, and as this is the case we need to make sure that they receive high-quality education concerning the processes through which our societies are developed and also the complex trade-offs between the different sustainability dimensions (ecologic sustainability, social sustainability and economic sustainability). Too often today, citizens feel that they have very little possibilities for influencing urban development initiatives. In fact, citizens regularly feel that they are treated as passive actors, that only receive information concerning what is under development and do not have any realistic opportunities for shaping their outcomes. Our newspapers frequently discuss projects that have been put to halt due to complaints filed in the court of law or due to protests organized by citizens. While these are legitimate ways of engaging with development initiatives, they are not very constructive ways of doing so. If we are able to motivate citizens to become more actively involved in the early stages of development initiatives, we are likely to gain many insights regarding how their positive contributions to our society can be increased. Due to increased ownership by the citizens, it is likely that the need for opposing initiatives will consequently decrease. Examples discussed in this book such as the ByMaker game where schoolchildren can evaluate the sustainability impacts of various competing development initiatives (Chapter 13), and the Junior University (Chapter 12) are very important steps towards making our youth feel that they are an integral part of smart and sustainable development, rather than just the target audience of it. Hence, the following conclusion:

Conclusion 6: The youth is the most important citizen group for developing our society in a smart and sustainable manner for the long term.

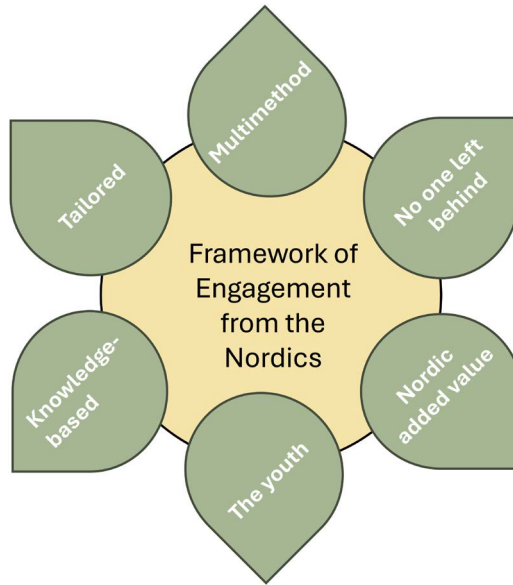


FIGURE 14.1 A framework for engagement from the Nordics

Source: Authors.

Figure 14.1 combines the six perspectives discussed above into a visual framework for engagement from the Nordics. The purpose of the framework is to support municipal decision-makers and policymakers by highlighting factors that, based on the research reported in this book as well as research carried out in the CaPs project, are of central importance in driving sustainable change in our society. Smart and sustainable urban development involves difficult and complex processes spanning several stakeholders. As this is the case, we do not claim that our framework would provide an exhaustive list of perspectives that need to be considered. What we do claim is that each of these six perspectives is central and needs to be incorporated in all urban development initiatives implemented in the Nordics.

Directions for future research and development

We are still a very long way from the point in which we can call our way of life as sustainable. A vast amount of academic research, in particular interdisciplinary research spanning disciplines and actively engaging with municipalities and businesses, is required. In urban development initiatives, the role of sustainability considerations needs to receive a much higher priority than it currently does. And we need to broaden the considerations

regarding sustainability to include, in addition to the rather dominant ecological sustainability aspects also social as well as economic aspects. We simply cannot leave a part of our more disadvantaged citizens behind by arguing that engaging with them would be prohibitively expensive or acceptable due to the need for pursuing ecologic sustainability. And given the current rather high rate of national debt in some Nordic countries, we cannot afford carry out the transition that is required in an economically unsustainable way, postponing the payment to future generations.

In terms of knowledge sharing, it is evident that a lot of the state-of-the-art knowledge that exists today and is generated tomorrow is not easily accessible to the individuals in municipalities who are responsible for driving urban development initiatives and engaging citizens in them. Currently, the main method for disseminating results of academic research is through journal articles and conference papers. The dominance of this method is emphasized by the fact that the performance of academic researchers is predominantly evaluated by the number of papers academics they are able to publish in these channels, and how much other scholars cite them. The problem is that very few practitioners have the time to search for academic papers and read them. Furthermore, many of these papers are also inaccessible as they are locked behind paywalls. What we urgently need are faster and more effective ways of disseminating scientific knowledge to practitioners. One potential solution here could be a network or forum that would offer a possibility for practitioners to meet discuss research findings related to urban development. This forum could also feature an easy-to-access repository in which it would be possible to store research findings in multiple formats (including, but not limited to, papers, presentation materials and video content). This repository should also be openly accessible and easily navigable. Its establishment would not be an easy or inexpensive endeavour, but if it would be done right, it could dramatically support sharing of knowledge and experiences both between the academia and practitioners, and between municipalities.

Final words

For the editors of this book, the research work carried out for this book has been a long yet rewarding process. On our way we encountered several obstacles and consequently needed to adjust our plans and ongoing research activities. In particular, the COVID pandemic significantly hindered our opportunities for carrying out empirical research. In addition, it scrapped many of our plans related to researcher exchange and field visits. However, with the lasting support from many Nordic municipalities and NordForsk, which we are very grateful for, we were able to come up with novel approaches to research and collaboration that allowed to reach outcomes which we are a little bit proud of.

This book as a whole is a minor, yet valuable step in our shared way towards the smart and sustainable cities of the future. While it is clear that thousands of more steps, some of which far bigger than this one, are needed to reach our goal, we are confident that we will get there, eventually.

The editors.

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References

- Delaney, J. (2022). Minecraft and playful public participation in urban design. *Urban Planning*, 7(2), 330–342.
- Schmidt, A. (2023). Strategic information: A qualitative study on the use of digital curriculum vitae for social work with vulnerable clients. *The British Journal of Social Work*, 53(6), 3164–3180.
- Senior, C., Temeljotov Salaj, A., Johansen, A., & Lohne, J. (2023). Evaluating the impact of public participation processes on participants in smart city development: A scoping review. *Buildings*, 13(6), 1484.
- Toukola, S., & Ahola, T. (2022). Digital tools for stakeholder participation in urban development projects. *Project Leadership and Society*, 3, 100053.

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