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Ella Keinonen & Lauri Hooli

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Co-creation or consultation? The role of community engagement in public urban innovation processes in Helsinki

Ella Keinonen and Lauri Hooli

Department of Geography and Geology, University of Turku, Turku, Finland

ABSTRACT

Public innovation intermediaries strive to play a key role in translating participatory ideals into urban innovation practice. This article examines how such intermediaries shape community participation within open innovation projects, focusing on Forum Virium Helsinki (FVH), an actor in Helsinki's smart city ecosystem. Drawing on participatory urban planning and public innovation intermediation, the study assesses whether community participation yields meaningful co-creation or remains largely procedural. The analysis draws on FVH's project library (199 projects), from which seven were selected for in-depth qualitative study, combining document analysis with ten stakeholder interviews. A process-oriented framework compares engagement practices across project stages. Findings show a recurring pattern: while ideation and implementation feature visible engagement – surveys, workshops and test-user activities – participation during design and evaluation is limited and often symbolic. This reveals a gap between the rhetoric of co-creation and its practical realization. The study concludes that intermediaries like FVH both enable and constrain participatory governance. Although they facilitate experimentation and collaboration, institutional and project-based constraints restrict transformative participation. Embedding participatory innovation in ongoing governance is essential for inclusive, sustained community engagement.

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1. Introduction

Over half of the global population now lives in cities, and this trend is expected to accelerate, with nearly 75% of Europeans projected to reside in urban areas by mid-century (World Bank 2024). Cities have increasingly become central nodes in global networks of economic activity, fostering creativity, attracting talent and investment and serving as platforms for innovation and entrepreneurship (Camboim, Zawislak, and Pufal 2019; Cambra-Fierro et al. 2024). Yet, alongside these opportunities, rapid urbanization poses a complex array of sustainability challenges – including deepening socio-spatial

CONTACT Lauri Hooli lauri.hooli@utu.fi Department of Geography and Geology, University of Turku, Turku, 200014, Finland

inequalities, environmental degradation and growing democratic deficits in urban planning and governance (Liu et al. 2021).

Cities are increasingly adopting innovative, inclusive policies to mobilize residents' creative potential and address complex sustainability challenges, embedding community engagement more deeply in urban planning (Anthony Jnr et al. 2021). Urban environments are framed as platforms for strengthening social capital and capacities by integrating economic and natural resources through innovation to improve urban quality of life (Fernández Áñez 2016). Many cities now pursue open, participatory, innovation-oriented strategies and planning processes to support more inclusive, adaptive and resilient futures (Datola 2023; Leino and Puumala 2021). These approaches recast residents as co-creators rather than end-users, enhancing the legitimacy and contextual fit of urban development initiatives (Fredericks 2020).

A key ambition of inclusive urban innovation is to advance co-creation – moving beyond consultation by involving residents in the design, implementation and evaluation of urban solutions (Lund 2018). Co-creation assumes that knowledge and agency are widely distributed and that collaboration across public, private and civil society actors can produce more legitimate, context-sensitive outcomes (Arnkil et al. 2014). It frames cities as platforms for community-driven innovation grounded in diverse perspectives and capabilities (Karadimitriou, Hofstad, and Kourtit 2022). Yet practice remains uneven: participatory efforts are often fragmented, instrumental, or symbolic, falling short of these transformative aims.

In urban planning research, intermediaries are most often conceptualized as boundary-spanning organizations that broker collaboration, align diverse actor interests and stabilize experimental initiatives within wider urban transition and planning processes (Hodson, Marvin, and Bulkeley 2013; Hofstad, Lægreid, and Karadimitriou 2022). They are to act as boundary spanners that align diverse institutional logics, coordinate multi-actor processes and sustain collaboration across the planning process (Matschoss and Heiskanen 2017). Unlike municipal or private actors focused on their own mandates, they integrate technical experimentation with participatory methods to ensure community perspectives shape the planning process (Kivimaa 2014).

Existing research has paid limited attention to the specific role of public innovation intermediaries in enabling meaningful community co-creation within urban planning. Although participatory approaches are widely promoted, a persistent gap remains between their ideals and practical implementation (Hossain, Leminen, and Westerlund 2019; Menny, Voytenko Palgan, and McCormick 2018), and the intermediary's capacity to translate these ideals into sustained engagement is still underexplored (Matschoss and Heiskanen 2017). At the same time, while inclusive participation is recognized as essential to urban innovation, putting it into practice beyond tokenistic consultation continues to be challenging (Anthony Jnr 2021). Evidence indicates that despite efforts to involve diverse stakeholders, communities often remain marginal to innovation processes and rarely act as genuine co-creators (Přibyl et al. 2017), leading many initiatives to fall short because local perspectives and capacities are insufficiently embedded in planning and decision-making (Simonofski et al. 2019).

Addressing these gaps, our research examines how community participation is practiced within urban innovation projects in the Helsinki metropolitan area – a highly relevant context given Finland's international reputation for innovation and Helsinki's position

as a national hub. Finland ranks seventh in the 2025 Global Innovation Index, and Helsinki is 11th in the 2025 IMD Smart City Index, underscoring its standing in smart city development. The study focuses on initiatives facilitated by Forum Virium Helsinki (FVH), the City of Helsinki's innovation company and a central intermediary linking municipal actors, businesses, researchers and citizens within an open innovation ecosystem.

By unpacking how participation is shaped in this context, we contribute to a more nuanced understanding of public intermediary roles in participatory urban innovation, clarifying the tensions between co-creation ideals and consultation-based practices. More broadly, we discuss how innovation intermediaries can embed inclusive, co-creative practices in urban governance and bridge experimentation with policymaking, offering insights applicable beyond Helsinki to cities aiming to link technological innovation with social inclusion. Our study is based on the following research questions:

1. What forms and methods of community engagement are employed by the FVH in its urban innovation processes?
2. What are the main objectives underpinning community engagement in these processes, and how are these objectives translated into practice?
3. What are the key enablers and constraints shaping the effectiveness of community engagement in Helsinki's urban innovation initiatives?

To answer our research questions, the study adopts a qualitative design based on data triangulation across multiple sources analyzed through the Comparison of Participatory Processes (COPP) framework (Hassenforder, Smajgl, and Ward 2015). The core dataset comes from FVH's internal project library, which contains comprehensive documentation spanning the full life cycle of its innovation projects. From this repository, seven projects were selected for in-depth qualitative comparison, representing diverse participatory approaches and contexts. These cases illustrate how communities are engaged within Helsinki's open innovation ecosystem. To complement and contextualize the document analysis, we conducted ten semi-structured interviews with FVH staff – including project managers, planners, communication specialists and innovation coordinators – providing insight into the motivations behind participatory strategies, the implementation of engagement methods and the factors shaping meaningful community involvement.

2. Community engagement, inclusive innovation and co-creative urban governance

Recent debates on public sector innovation have shifted from managerial reform towards more systemic understandings of governance and institutional transformation (Bouzguenda, Alalouch, and Fava 2019). Innovation is now regarded not only as a pursuit of efficiency but as a relational practice reshaping state–market–society interactions (Fredericks 2020). In urban contexts, cities have become strategic sites for addressing global sustainability challenges while reconfiguring administrative routines (McGuirk et al. 2022). Urban experiments – collaborative arenas that engage governmental, academic, private and community actors – operate as laboratories for reconciling socio-technical and socio-ecological transitions (Bouzguenda, Alalouch, and Fava 2019; Treija et al. 2023).

This experimental turn signals broader transformations in governing rationalities, shifting from hierarchical steering towards adaptive, engaging and networked modes (McGuirk et al. 2022). Yet such shifts generate ambivalent effects: multi-actor collaboration can enhance responsiveness but also reproduce uneven power relations in which participation appears to include without redistributing influence (Bason 2018). The analytical task is thus to examine who gains agency in innovation processes and whose knowledge determines outcomes.

The literature on collaborative and engaging governance highlights the institutional dimension of experimentation – co-creation processes that realign knowledge, authority and responsibility (Lund 2018). These arrangements extend decision-making beyond state institutions, generating more polycentric and negotiated forms of governance (Cao and Kang 2024). However, the rhetoric of collaboration often conceals persistent power and capacity asymmetries (Bherer, Gauthier, and Simard 2016).

Local innovation initiatives illustrate these tensions. Urban living labs, social innovation hubs and public intermediaries seek to build hybrid models that combine horizontal collaboration with accountability (Veeckman and Temmerman 2021). They manage diverse actors and timescales, reconciling the pace of experimentation with slower rhythms of learning and institutional adaptation. Conceptualizing the city as a shared commons reframes transformation as collective stewardship rather than managerial control (Menny, Voytenko Palgan, and McCormick 2018).

The concept of inclusive innovation extends this perspective by challenging technocratic and market-centred understandings of urban change. It frames innovation as a socially embedded and politically charged process entangled with justice, access and recognition. It asks who participates, whose knowledge counts and who benefits (Nyseth and Hamdouch 2019). Here, innovation denotes not only novelty but also the capacity to confront structural inequality and improve collective well-being (Schot and Steinmueller 2018).

Nevertheless, many urban innovation programmes continue to limit citizens to consultative roles that reinforce existing power hierarchies and overlook the everyday experiences of marginalized communities (Bason 2018). Meaningful engagement requires structural embedding within governance routines rather than episodic inclusion. Co-creation represents the most ambitious form of participatory innovation – joint problem framing, design and implementation that foster mutual learning and social resilience (Menny, Voytenko Palgan, and McCormick 2018; Winanda and Zaakiyyah 2025).

Yet translating co-creation from aspiration to practice remains difficult. Bureaucratic inertia, limited resources and fragmented responsibilities frequently impede outcomes (Geekiyanage, Fernando, and Keraminiyage 2020). What matters is not merely whether participation occurs but whether institutional conditions make it consequential. Here, the notion of innovation intermediaries offers analytical leverage. Intermediaries act as boundary organizations that link governmental, civic and private actors (Kivimaa 2014). Rather than neutral facilitators, they perform relational and political work – mediating interests, translating ideas and sustaining collaborative arenas (Matschoss and Heiskanen 2017). Through such brokerage, they can convert local knowledge into policy-relevant insight and embed inclusivity within innovation processes (Anthony Jnr 2021).

Despite this, the role of innovation intermediates remains ambivalent. Embedded within hierarchies, intermediaries risk reproducing managerial logics that depoliticize participation (Fredericks 2020; Leino and Puumala 2021). Aligned with justice-oriented

missions, they can instead expand democratic capacity, build trust and legitimize alternative imaginaries of development (Schot and Steinmueller 2018). The durability of inclusive innovation depends on sustaining relational infrastructures that connect grassroots initiatives with formal governance architectures (Anthony Jnr 2021).

Integrating communicative planning theory with research on inclusive innovation and boundary spanning provides a critical lens for contemporary urban governance. Empirical research shows that many engagement initiatives fall short of their democratic aspirations. Standard formats like public hearings or online surveys often fail to reach or empower marginalized groups – including migrants, youth, linguistic minorities and people with disabilities – limiting their representativeness and legitimacy (Heaton and Parlikad 2019). Moreover, engagement is frequently episodic, tied to project cycles, rather than embedded in longer-term relationships of accountability and learning (Hofstad, Lægreid, and Karadimitriou 2022; Leino and Puumala 2021).

Co-creation is best understood as democratic experimentation – a continual renegotiation of authority, expertise and legitimacy (Lund 2018). Intermediaries act as catalysts, enabling learning across institutional scales and temporalities. Ultimately, a city's transformative capacity rests less on technological novelty than on the vitality of its dialogic infrastructures – spaces where communities and institutions co-define, co-produce and co-govern trajectories of urban change (McGuirk et al. 2022; Simonofski et al. 2019).

3. Urban innovation ecosystem in Helsinki

Finland is frequently recognized as one of the leading nations in innovation within Europe, driven by strong R&D investment and a competitive, transparent economy. In 2023, Finland's R&D spending reached approximately 3.09% of GDP, supported by strategic policy frameworks aimed at achieving 4% by 2030 (European Commission 2025). The capital Helsinki is a key hub of innovation.

In 2025, Helsinki's population reached 700,000 inhabitants, with an annual growth rate of 1.4%, driven by both domestic and international migration (City of Helsinki 2025). Projections estimate that the city will exceed 900,000 by 2060, reflecting its expanding role as a regional magnet for talent and economic activity. The broader Helsinki metropolitan area – the country's foremost economic and research cluster – generates over €105 billion in GDP and hosts Finland's top universities, corporate headquarters and research institutions. Helsinki has demonstrated a strong commitment to collaborative government and citizen engagement, positioning itself at the forefront of urban innovation in Europe (Anttiroiko 2016).

Community engagement in Helsinki is not merely aspirational but legally mandated through the Local Government Act (410/2015), which obliges municipalities to provide opportunities for resident participation. Helsinki's participatory governance model emphasizes harnessing local knowledge, supporting citizen-initiated activities and ensuring inclusive access to participatory processes (City of Helsinki 2020). This is operationalized through various digital and face-to-face mechanisms, such as 'OmaStadi' for participatory budgeting, 'Kerrokantasi' for collecting citizen input on policies and 'Maptionnaire' for designing spatially informed community engagement. Additionally, seven borough liaisons ('stadiluotsi') serve as intermediaries, helping to bridge communication between residents and municipal actors (City of Helsinki n.d.).

FVH, established in 2005, is a non-profit innovation intermediary dedicated to advancing public urban innovation and digital transformation. Its core mission is to support the city's digitalization goals, enable companies to use Helsinki as a living testbed, and serve as an agile expert organization that bridges public- and private-sector interests (Forum Virium Helsinki 2024). FVH designs and pilots' innovation projects that aim to generate scalable solutions for the broader urban community – often resulting in new products, services, companies, open data, or operational models.

The organization manages approximately 30–40 concurrent projects, with most funding coming from European Union programmes. Between 2005 and 2024, FVH has led over 210 innovation projects, collaborating with more than 420 partner organizations and engaging around 3,500 community members (Forum Virium Helsinki 2024). FVH frames community engagement as strategically and ethically important for grounding innovation in lived needs and strengthening legitimacy. However, because engagement is typically selective and project-specific – shaped by resources, timelines and organizational priorities – it risks uneven inclusion and limited influence over decisions.

3.1. FVH's methodologies for community engagement

FVH organizes its work around three thematic programmes – Smart City, Smart Mobility and Data – with projects aligned to one focus area and delivered by dedicated teams. Several projects analyzed here were part of international or domestic consortia in which FVH led local implementation in Helsinki rather than the full project lifecycle. Lessons from selected successful initiatives are consolidated in FVH publications, supporting internal knowledge transfer and external visibility.

Although FVH does not follow a single formalized process model, it has published a conceptual guide, The Anatomy of a Successful Development Project (Partanen n.d.), outlining five recurring stages: (1) identifying the problem, (2) securing partner commitment, (3) involving users, (4) testing and (5) refining solutions through feedback. The guide functions as a high-level set of principles and method options rather than a prescriptive procedural manual.

While FVH draws on external best practices – particularly through benchmarking with organizations such as the European Network of Living Labs – it has also developed its own participatory approaches tailored to the context of Helsinki. These approaches include:

Citizen Innovator Pool ('Trial Troops') – Since 2019, FVH has maintained a mailing list of around 550 'citizen innovators' who are regularly invited to take part in surveys, workshops and pilots to provide feedback, test solutions and contribute as end users and occasional co-creators (Karmala 2021). The Citizen Innovator Pool centres on four activities – recruitment, timely communication, incentives or recognition and systematic feedback collection – but, while effective for mobilization, it tends to attract already active residents with the time, digital access and social resources to participate.

Urban Lab Spaces and Pop-Ups are physical, low-threshold interfaces for community engagement and stakeholder collaboration, used to pilot innovations, host co-creation workshops and showcase outcomes (Fiksu Kaupunki n.d.). 'Green pop-ups' – modular, mobile outdoor structures – temporarily activate public space and invite residents into project processes through an accessible format that enables spontaneous,

short-term involvement from a broader public. In practice, their main value lies in increasing visibility, building familiarity between stakeholders and strengthening willingness to participate in future initiatives.

4. Materials and methods

To address our research objectives, we employed a triangulated qualitative approach drawing on multiple empirical sources. Access to FVH's internal project library provided documentation on 199 projects – 155 completed – covering all stages of the project life cycle. Seven projects were then selected for in-depth comparison using purposive criteria aligned with the research objectives. Selected cases were required to contain sufficiently detailed and coherent documentation to support analytical reconstruction and to demonstrate intentional, planned and documented community engagement embedded in project design and delivery, rather than minimal or ad hoc outreach such as isolated surveys or one-off open events.

Primary data comprises published and unpublished materials, including guidelines, project documents, reports and self-evaluations. Completed by project teams after closure as part of FVH's internal learning and knowledge-transfer practices, the self-evaluations use a structured survey format to document objectives and baseline conditions, methods and outputs, achievements and unmet goals, perceived value and reflections on methodological effectiveness and implementation challenges. Supplementary sources – internal publications, KPIs, engagement logs, handbooks, mid-term assessments and final reports – provide context, though documentation depth varies by project scale and funding, affecting reporting requirements and data completeness. Together, these sources enable a comprehensive view of participatory practices and the conditions shaping community engagement across Helsinki's urban innovation projects.

This study examines seven FVH projects across its three main programme areas: Smart City, Smart Mobility and Data (see Table 1). The projects represent varied approaches to community participation and were implemented in three distinct urban contexts within Helsinki: Jätkäsaari, Kalasatama and designated urban renewal areas – Malmi, Malminkartano-Kannelmäki, Mellunkylä and Meri-Rastila.

Jätkäsaari and Kalasatama are newly developed districts located near the city centre, constructed on former brownfield and industrial sites. Initiated after 2010, both areas serve as flagship examples of smart urban development in Helsinki, designed with a strong emphasis on sustainability, digital infrastructure and innovation-friendly environments. Upon completion in the 2030s, these areas are projected to accommodate approximately 50,000 residents.

In contrast, Malmi, Malminkartano-Kannelmäki, Mellunkylä and Meri-Rastila are more established districts. These areas face various socioeconomic challenges, including higher rates of unemployment and lower levels of service provision. However, their strategic location – particularly their accessibility to rail transport – positions them as key sites for future urban densification and mobility-oriented development. The renewal programme aims to mitigate spatial segregation and foster more balanced urban growth.

Table 1 presents the projects analysed in this study. These projects span a wide range of thematic areas, including waste management, green infrastructure, air quality

Table 1. Our empirical material is based on seven FVH projects.

Project and programme	Timing, location	Target system elements	Past interventions & relationships
6Aika Smart Kalasatama – Smart City	2016–2018, Kalasatama	Smart mobility services, waste management, co-creation of local services	✓ Multiple projects since 2013, strong existing relationships
B.Green – Smart City	2020–2022, Kalasatama	Green infrastructure	✓ Strong existing relationships, possible participation fatigue (interviewee)
Helsinki Innovation Districts – Smart City	2020–2023, Renewal areas	Expand innovation activities. Develop solutions focused on different themes in each area	X First approach
UrbanAge – Data	2021–2024, Renewal areas	Develop inclusive, healthier, happier, age-friendly cities Assess disruptive technology for evidence-based urban planning	✓ Good existing relationships
Mobility Urban Values – Smart Mobility	2017–2020, Jätkäsaari	Mobility behaviourP otential of illustration and gamification	✓ Good existing relationships
HOPE (Healthy Outdoor Premises for Everyone) – Data	2018–2022, Jätkäsaari	Air qualityF eedback loop between data and community actions	✓ Good existing relationships
Jätkäsaari Mobility Lab – Smart Mobility	2019–2021, Jätkäsaari	New mobility solutions for the city, community and tourists Synergies between subprojects	✓ Good existing relationships sustained participation

monitoring and inclusive urban development. A notable emphasis is placed on smart city initiatives, particularly advancing sustainable mobility solutions in Jätkäsaari. The diversity of focus areas represented across these projects reflects the multifaceted nature of contemporary urban challenges and illustrates how they are being addressed through targeted innovation efforts. Collectively, these cases offer valuable insights into how community engagement is integrated into different domains of urban development.

To complement the document analysis, we conducted ten semi-structured interviews with FVH project experts. The first five interviews (A–E) involved a senior project manager, senior advisor, communications specialist, technical specialist and development manager. These interviews were carried out between February and March 2023 to establish an initial understanding of FVH's operational context, participatory practices and organizational objectives. The second phase (F–J), conducted between April and May 2023, targeted experts directly involved in the selected case projects, particularly where written documentation was insufficient.

Interviews focused on project objectives, engagement methods, outcomes and the perceived effectiveness of community participation. We also explored challenges and enablers, as well as the broader value of engagement. As project managers and planners, the interviewees provided critical insights into both strategic intent and practical implementation. All interviews were conducted in person or remotely, lasted 45–60 min, recorded with consent and transcribed verbatim for subsequent qualitative analysis.

To enable systematic comparison across otherwise heterogeneous projects, we apply a combined analytical framework integrating Almirall, Lee, and Wareham's (2012) innovation process model with the COPP framework (Hassenforder, Smajgl, and Ward 2015). Innovation process model structures innovation into four iterative stages – contextualization, concretization, implementation and evaluation – while COPP functions

as a sensitizing device that foregrounds three interrelated dimensions – contextual factors, participatory practices and outcomes – linking settings and design choices to what participation produces. Adopted from an organizational perspective, this integrated lens supports the identification of key enablers and barriers shaping the scope, depth and quality of community engagement across stages.

5. Community engagement in FVH innovation processes

5.1. Context and foundational factors

As shown in Table 1, the seven projects address varied urban challenges – waste management, green infrastructure, air quality and inclusive development – often through smart city solutions. Priorities differ by location: newly developed districts Kalasatama and Jätkäsaari emphasize technological innovation, while redevelopment areas focus on livability and safety. This variation shows how context shapes problem framings and participation demand, increasing the need for mechanisms that translate, align and sustain collaboration across diverse goals and actor constellations. Innovation intermediaries provide this brokerage and coordination by linking stakeholders, transferring practices between contexts and maintaining continuity across initiatives, yet short-term external funding can constrain the depth and continuity of participation.

Contextual factors strongly influence participatory outcomes (Hassenforder, Smajgl, and Ward 2015). The localized and iterative nature of the projects – often building on previous initiatives – demands careful attention to existing community dynamics and past experiences. Adapting engagement to each setting is essential for inclusivity, meaningful participation and equitable access to the benefits of innovation.

Expanding project activities into new districts requires substantial groundwork to understand the area and build trust with the residents. Early engagement typically prioritizes relationship-building, laying the groundwork for sustained participation. FVH´s strategy is to concentrate pilot activities within selected districts to generate synergies among projects, strengthen community commitment and enable more focused communication (Spilling and Rinne 2020). However, excessive activity in one area – such as Kalasatama – can cause 'participation fatigue'. Alternating thematic focus can help sustain community interest and motivation (Interviewee H).

5.2. Community participation across the project lifecycle

Table 2 shows how the participatory objectives across the seven examined projects reflect the intermediary's critical role in supporting collaboration and innovation ecosystems. The projects pursue a range of objectives that can be grouped into four interconnected themes.

First, they aim to build foundational elements for the area, most notably by establishing Urban Living Labs that provide both physical and digital platforms for engagement. Second, they seek to enhance engagement processes by designing and implementing innovative participatory tools, improving the experience of involvement and broadening participation to increase diversity and representation. Third, they aim to empower and educate communities to understand urban challenges and innovation processes, enabling

Table 2. Participatory process in the FVH projects.

Project and programme	Participatory process objectives	Degree of engagement	Methods and tools
6Aika Smart Kalasatama – Smart City	Improve participation experience in the newly developed area Community-driven planning	Information, ambitions for co-creation	Co-creation events Trial Troops GIS-tools
B.Green – Smart City	Design data-driven, participatory approachC o-design green infrastructureEngaging in data collection	Consultation	Survey Co-creation events Testing sessions City walk
Helsinki Innovation Districts – Smart City	Broaden participation. Enhance dialogue Improve visibility and understanding Strengthen the sense of inclusion Gather ideas, data, and feedback. Special focus on seniors and youth	Consultation	Street polls and surveys Green pop-ups Testing sessions City walksWorkshops Gameday for children Real-life interaction
UrbanAge – Data	Improve co-design Design a user participation strategy Enhance interaction and understanding Identify real needs Co-create participatory data collection device	Co-creation, Information	Participatory data collection Workshops for device development
Mobility Urban Values – Smart Mobility	Gather input and feedbackC ollaborate and empowerC o-design the gameP romote mobility behavioural change through gamificationData collection through the game	Co-creation, Information	Workshops for game developmentT esting campaignsP articipatory data collection
HOPE (Healthy Outdoor Premises for Everyone) – Data	Increase understanding and empowerment Promote behavioural change. Implement co-design and participative budgeting Co-create data collection device Gather views and attitudes Individuals from diverse backgrounds	Information	Participatory budgeting application and data collection Feedback sessions Online surveys Trial Troops
Jätkäsaari Mobility Lab – Smart Mobility	Develop a ULL for smart mobility Foster a culture of community engagement Involvement in various activities Identify technology reception Co-define challenges	Consultation	Surveys Testing sessionsWorkshops Info webinars Trial Troops

residents to shape local development and encouraging behavioural change linked to sustainability and civic responsibility. Finally, they aim to drive innovation by actively gathering input from community members to inform the development, experimentation and refinement of urban solutions.

To achieve these objectives, FVH employs a diverse array of traditional and innovative methods. Traditional tools include community meetings, localized outreach, surveys, interviews, street polls and feedback sessions. More innovative approaches include agile piloting methodologies – providing a framework for co-creative experimentation

– participant pools, participatory data-collection devices, participatory budgeting and dedicated applications.

Despite this variety, a key challenge identified by several interviewees was engaging passive or vulnerable groups. Participation often relies on active individuals, who primarily serve as surveyors or test users. To counter this, projects have employed interactive and playful methods, including gamedays, city walks and gamification, to make engagement enjoyable across age groups. Targeted initiatives for children, seniors and other underrepresented groups seek to broaden participation, promote equity and support more inclusive community development.

The following subsection analyses each project stage – contextualization, concretization, implementation and evaluation – following Almirall, Lee, and Wareham (2012) four-stage model.

5.2.1. Contextualization – building relationships and defining scope

During the contextualization stage, the project scope is defined collaboratively with stakeholders by identifying the area's expectations, priorities, challenges and needs (Almirall, Lee, and Wareham 2012). At this stage, attention tends to favour input from companies, experts and innovation professionals over community perspectives, as the lack of tangible outputs can deter voluntary participation and limit community impact on early direction. Interviewees therefore emphasized linking activities to everyday life and embedding them in familiar events.

Local organizations, networks and schools help reach participants through trusted, established communication channels and can validate target groups (interviewee B). A prime example is collaboration with schools to gather children´s input. While such partnerships strengthen legitimacy, they may also filter participation through already organized or active groups, reinforcing existing representation patterns. At this stage, surveys are commonly used for broad engagement, while workshops suit smaller groups or high-level themes.

Expanding into previously unengaged areas requires substantial relationship-building. FVH's recent move into older Helsinki neighbourhoods prompted experiments with green pop-ups and urban living lab spaces as entry points for initial community engagement. Green pop-ups, first piloted in 2021, create temporary green oases in central urban areas using modular elements such as benches and urban nature. They generated positive community feedback and functioned as communication platforms about future changes, while also providing valuable piloting experience (Fiksu Kaupunki 2021) (Figure 1).

Effective communication is central to success. Using diverse channels – from social media and project webpages to cafés, libraries and neighbourhood events – helped reach a broad audience (interviewees A–C, H; see B.Green n.d.; Spilling, Rinne, and Hämäläinen 2019). Clear communication about engagement aims, data practices and pilot outcomes built trust, managed expectations and supported sustained involvement. Embedding activities in existing community structures improved accessibility, though reliance on established networks can exclude less organized or digitally marginalized groups. Overall, diverse communication and context-sensitive methods increase reach and impact but do not by themselves address structural inequalities or secure long-term engagement.

Figure 1. Green pop-up in Malmi, Helsinki (Photo: Lauri Rotko, 2021).

5.2.2. Concretization – co-designing and refining solutions

Community engagement during planning and prototyping often remains limited despite its interactive and iterative nature. Methods are typically passive and centred on traditional innovators in brainstorming and other creative sessions; design sprints, for example, are usually geared towards professional groups rather than the wider community. As a result, key design parameters are often set before residents are involved, positioning them more as validators than co-designers of core concepts. Still, some opportunities for participation in solution development emerge through interviews, surveys, or participatory budgeting applications.

Some projects incorporated more substantive co-creation at this stage. In the UrbanAge project, a digital feedback tool for age-friendly urban planning was developed through two iterative online workshops with senior citizens, who tested early mockups, assessed usability and interface clarity, evaluated the relevance of planning scenarios and proposed modifications to better align the tool with the needs of its target group (UrbanAge Project Deliverable). Subsequently, the city organized data-collection sessions with older residents to inform decision-making in the area (Virtanen et al. 2024). The results led to the installation of up to 100 chairs in locations suggested by participants (Figure 2).

Similarly, in the Mobility Urban Values project, a game to encourage behavioural change was co-created with residents through workshops. By rewarding low-carbon choices such as walking and cycling, the process built participant ownership that sustained engagement and generated valuable data on everyday mobility practices in Jätkäsaari (MUV Project Report; Forum Virium Helsinki n.d.).

Figure 2. Participatory data collection tool (Photo: Ella Keinonen, 2024).

5.2.3. Implementation – piloting and learning

The implementation stage centres on piloting, testing and appropriation of solutions, serving as a critical period for learning and optimization (Almirall, Lee, and Wareham 2012). Across the broader FVH project catalogue, community engagement often begins here, with residents primarily positioned as end-users providing feedback. Engagement depth varies with the piloting organization's needs and capacity. In some pilots, the organization leads engagement, with FVH supporting only as needed; this decentralized approach increases flexibility but can lead to uneven engagement quality and limited oversight of participatory standards.

Testing occurs through independent or guided sessions, structured events, workshops, or integration into participants' everyday routines. One interviewee noted that observation and interviews yield more useful feedback than surveys, which often lack depth

(interviewee B). However, limited time and resources favour scalable surveys over more labour-intensive qualitative methods, reinforcing a pragmatic rather than deliberative logic of participation.

FVH has also tested innovative participation tools during implementation. In the B.Green project, virtual reality allowed participants to experience green-infrastructure scenarios without interpreting technical drawings, making abstract plans more tangible and helping diverse stakeholders visualize seasonal uses and greening possibilities (B.Green Handbook 2022). The qualitative insights generated through these interactions were then used to inform area planning. A similar tool, UrbanistAI, used artificial intelligence to translate residents' verbal preferences into visual urban scenarios (interviewee B). While this helped participants understand potential developments and articulate ideas, it also positioned technology as an intermediary that filters and interprets community input.

Data collection is a key engagement method during implementation. In the HOPE project, residents carried portable air-quality sensors that automatically monitored neighbourhood conditions; the data revealed spatial variation in air quality and increased participants' environmental awareness. The results triggered wider discussion and follow-on initiatives, informing subsequent air-quality projects. This low-effort participation required little beyond carrying the device and limited ideation, yet it shows how intermediaries can facilitate innovation while enabling learning and modest empowerment.

5.2.4. Evaluation – learning from experience

The evaluation phase is intended to generate learning through observation and feedback (Almirall, Lee, and Wareham 2012), yet in our cases, it involved limited community engagement: surveys or end-of-pilot feedback tools were sometimes used, while deeper reflection remained largely among partners and piloting companies. Community engagement in evaluation was neither systematically planned nor embedded in project design, and we found no documented mechanisms for participatory co-evaluation (e.g. collective reflection or shared outcome assessment). As a result, community perspectives and learning are underrepresented, and the lack of systematic feedback on the engagement experience itself limits opportunities for institutional learning and improvement.

Synthesizing the seven cases through the phase–COPP matrix (Table 3) reveals a recurring configuration. Community engagement is most visible in contextualization and implementation, where it supports scoping, recruitment, testing and data collection. By contrast, concretization and evaluation show systematically lower levels of community influence: communities are more often positioned as validators than co-designers, and participatory co-evaluation is rarely planned or resourced. This uneven distribution helps explain why project-level engagement does not consistently translate into sustained learning or institutional uptake. The pattern also illustrates the intermediary's ambivalent role: FVH enables mobilization and experimentation, yet project cycles and partner logics constrain deeper co-creation across the full lifecycle.

5.3. Outputs and impacts

Community engagement is central to many FVH projects, involving residents in innovation development and fostering ownership and empowerment (Table 4). Across the

Table 3. Integrated Phase combining the COPP framework with the key findings of the research.

	Contextualization	Concretization	Implementation	Evaluation
Context	Prior interventions shape baseline trust. Access to local networks and intermediaries determines reach	Pre-framed design logics (partners/ professionals) narrow what is negotiable	Pilot-driven timelines and deliverables prioritize rapid testing and data	End-of-project reporting and partner accountability dominate evaluation
	Participation fatigue and fragmented project governance	Recruitment bias and limited iteration capacity constrain inclusive co-design	Tech, GDPR and uneven partner capacity constrain engagement	Lack of co-evaluation routines/resources limits community involvement
Process	Surveys/ pop-ups/walks to scope needs and build trust (broad reach, low threshold)	Predominantly consultation/ validation; limited community role in setting design parameters	Community engaged mainly as test-users and data contributors	End-of-pilot feedback collected inconsistently (surveys/ events)
	Mostly consultative: informs framing, limited community agenda-setting	Co-design occurs only in select cases (UrbanAge, MUV) via iterative workshops	Feedback informs adjustments (consultation). Digital tools (VR/AI) mediate interpretation	Co-evaluation with the community is largely absent
Outcomes	Visibility and initial trust. Needs and priorities surfaced	Co-design cases produce tangible design changes and actionable inputs	High-volume data and actionable feedback improve pilots	Closing the loop to the community is weak; impacts remain under-assessed
	Community influence over early direction remains limited	Community influence and input remain weakly traced in decision-making	Learning is mainly operational; limited long-term uptake in routines	Limited evidence of long-term uptake beyond project cycles

initiatives examined, reported impacts are largely positive: stronger inputs to innovation, valuable data for municipal decision-making, a better understanding of lived needs, and improved dialogue, visibility and mutual understanding.

However, the nature and extent of these impacts vary with each project's objectives. Some initiatives did not reach intended engagement levels or fulfil participatory aims; one pilot was terminated due to too few test users, underscoring the difficulty of motivating participation and the importance of demonstrating early value to participants (private project document). Moreover, many impacts are self-reported in evaluations and interviews, with limited independent evidence of long-term behavioural change or sustained influence on decision-making.

Active monitoring of community engagement from the outset proved essential. Tracking user numbers, observing behaviour and collecting feedback on both the solution and the participation experience enabled early identification of challenges and timely corrective measures to sustain engagement across the project lifecycle (private project document; interviewee B). However, these efforts were largely geared towards operational needs and reporting – demonstrating outputs to funders and supporting incremental improvement – rather than enabling deeper participatory reflection or long-term institutional learning.

Engagement was constrained by multiple, interrelated challenges. GDPR compounded limited resources, weakly standardized processes and difficulties managing participant data. COVID-19 disrupted activities by forcing them online, reducing

Table 4. Outputs and impacts, table adapted from COPP framework (Hassenforder, Smajgl, and Ward 2015; Veeckman and Temmerman 2021).

Outputs & Impacts	Main outputs of the process	Barriers to engagement	Drivers for engagement	Impact on participants' actions
6Aika Smart Kalasatama – Smart City	'1/3 of the community has participated' Over 100 co-creation events	Low support for community-driven innovationR esource challengesL ack of systematic management of contact information	Living lab space fostered community-driven activities	Steering innovation development Community-driven smart city development
B.Green – Smart City	Dozen participants per pilotA pp co-developed Active survey responding Demonstrated the potential of digital participation	Covid-19 pandemic	Easy involvement of schoolsV isualizations enhance communicationC ommunity felt heard	Steering innovation development Survey was highly valuable to the city
Helsinki Innovation Districts – Smart City	Cooperation with the community increased Orientation partly towards the needs of the community Hundreds of participants at pop-up space	Focus on technology over communityG athering new participants Engaging youthR esource challenges'S mart city' mindset alienated seniorsI mmaturity of the innovation	Proactive communication and engagement (fieldwork) Reaching broad audiences, like schoolsM onitoring testing on site	Pop-up spaces created interaction opportunities Enhanced dialogue, visibility and understanding
UrbanAge – Data	Two co-creation sessions (online) with elderlyP articipation rates low	Lack of timeP hysical healthL ack of awarenessN o sense of ownershipL imitations in digital inclusiveness	Civic dutyH aving funSelf-efficacyG ood awarenessV isualizations available	Enhanced understanding of community's needs and experiences Co-creation workshops helped determine possible use cases
Mobility Urban Values – Smart Mobility	Dozens of participants in the demo phase	Privacy policy concernsD ownloading a new app	Community's enthusiasm for area developmentM otivation strategies (awards)	Increased awareness and engagementG rowing sense of community
HOPE (Healthy Outdoor Premises for Everyone) – Data	Community pool created Over 100 participants collected 1 million entries Participants declined after each round	Engaging young adultsE ngaging males Covid-19 pandemic Participation limited to those already interestedT echnical issues	Professional supportP ersonal data access and user pagesI nterest in target system elements and scienceM otivation strategies (awards)	High-quality crowdsourced data Sparked wider discussions and new initiatives within the city concerning air quality
Jätkäsaari Mobility Lab – Smart Mobility	Participation in various pilots. Pilot termination due to lack of participants	Covid-19 pandemicC hanging old behaviour patternsD ownloading a new appI nclusivity/accessibility challengesI mmaturity of the innovation	Collaboration with local associations and existing activitiesF ocusing activities within an areaT angible pilot Facebook marketing for recruitment	Establishing smart mobility ULLQ ualitative feedback and error reporting valuedP erception surveys valuable to the city

accessibility and interaction. Technological problems (malfunctions, low usability and immature solutions) also eroded motivation. Reaching diverse demographics proved difficult, particularly younger adults, men, youth and seniors with limited digital literacy, while unclear immediate benefits further reduced willingness to participate. Sustaining participation over long campaigns was challenging, and attempts to trigger behavioural change (e.g. adoption of new apps or digital tools) frequently encountered resistance.

Interviewees suggested that embedding new practices in familiar platforms can improve acceptance by leveraging trust and reducing participation barriers (project self-evaluation; interviewee H). For example, rather than developing new apps or websites, projects could build on existing services and add features.

Despite challenges, several factors supported participation. Familiar communication channels and established practices lowered entry barriers, while concentrating activities within specific neighbourhoods helped build receptiveness over time. Collaboration with local associations, schools and other organizations also enabled wider reach, validated target groups and strengthened legitimacy.

Rotating themes and activities helped sustain interest and re-engage participants, while clear, consistent communication about project goals and how input was used fostered trust, ownership and motivation. Face-to-face interaction remained crucial and gamification or small incentives provided additional stimulus. Collaboration with schools further extended reach and supported the uptake of new technologies through learning opportunities (interviewees B and H).

Overall, the cases suggest that effective engagement depends on context-sensitive design, accessible and motivating methods and ongoing transparent communication. Usability, immediate value and clear benefits help sustain participation, while diverse activities, modalities and channels broaden inclusion and strengthen ownership (Virtanen et al. 2024; private project documents). At the same time, transformative impacts on governance structures and long-term inclusion appear more limited and uneven than project narratives sometimes suggest.

6. Discussion and conclusions

Our research scrutinizes community participation within FVH-led urban open innovation projects in Helsinki, focusing on how participation is facilitated, experienced and institutionalized through FVH's work as an innovation intermediary. The study scrutinizes the intersection between open innovation practices and participatory governance, highlighting both the opportunities and limitations of co-creative approaches in contemporary urban development. Community participation across FVH's portfolio is neither linear nor uniform, but evolves through iterative cycles that reflect shifting institutional priorities, available resources and contextual conditions (Hossain, Leminen, and Westerlund 2019; Menny, Voytenko Palgan, and McCormick 2018).

While project documentation and policy discourse frequently emphasize co-creation, our study finds that genuine co-creative practices – where community members shape decision-making and solution design – remain relatively rare. Most participatory activities operated at the level of consultation or information sharing, reflecting a broader tendency in smart city governance where participatory rhetoric outpaces implementation (Cardullo and Kitchin 2019) and aligns with planning critiques of participation as

procedural rather than consequential (Datola 2023). Simplifying the typology of participation clarified these dynamics, showing that participation in the planning process often serves instrumental aims – data collection, validation, or dissemination – rather than transformative shared learning or empowerment.

We applied a framework linking context, process and outcomes (Hassenforder, Smajgl, and Ward 2015), combined with Almirall, Lee, and Wareham (2012) staged process model, to compare participatory processes and clarify when participation occurs, how it is organized, and what it produces. FVH's initiatives were strongly contextually embedded, often building on prior projects in the same area, underscoring that participatory innovation is relational and dependent on trust networks and local knowledge (Schuurman, De Marez, and Ballon 2013). Trust was built through sustained neighbourhood presence, partnerships with trusted local organizations and transparent communication about aims, data use and how feedback informed pilots; yet these benefits were difficult to sustain when relationship-building remained tied to short project cycles rather than routine governance.

FVH uses a wide range of participatory methods, from consultations to gamified workshops, agile piloting and citizen science. Engagement is most visible in contextualization and implementation through testing and feedback, while evaluation involves limited community input, and learning remains largely institutional. This imbalance suggests communities are treated more as informants than partners (Palmer et al. 2022), helping explain why pilot engagement rarely translates into institutional learning or routine planning practice.

FVH's participation objectives reflect core intermediary functions – facilitating collaboration, promoting behavioural change and strengthening local innovation ecosystems. Our results show why intermediaries matter alongside other stakeholders: FVH brokers' access across municipal units, companies and communities provides participatory design expertise, translates between professional and lived knowledge and carries learning across projects that single pilots rarely retain. These aims were largely met through awareness-raising, dialogue and user feedback, yet sustained empowerment remains elusive (Meijer and Bolívar 2016) under project-based experimentation (Evans et al. 2021). Wider impact, therefore, depends on whether insights and practices are integrated into the entire planning process rather than remaining isolated demonstrations (Hofstad, Lægreid, and Karadimitriou 2022).

Several barriers to participation were identified: limited financial and human resources, fragmented internal processes, technical immaturity and usability problems and persistent inclusivity challenges where younger adults, migrants and socially marginalized groups remained underrepresented without targeted outreach (Heaton and Parlikad 2019). The lack of immediate, tangible benefits also reduced motivation.

Conversely, drivers of participation included familiarity with community structures, transparent communication about objectives and how input was used and embedding activities in everyday routines and social infrastructures. These findings affirm that success depends not only on methods but on the strength of local relationships and continuity across projects and policy cycles (Menny, Voytenko Palgan, and McCormick 2018; Schuurman, De Marez, and Ballon 2013). At the same time, reliance on established networks can reproduce representation biases, reinforcing the need for targeted outreach to less organized or digitally excluded groups.

Spatial and temporal dynamics also mattered. In districts where FVH has not yet been established, early participation concentrated on building trust and awareness around innovation activities. Concentrating activities in specific districts enabled long-term networks and synergies but also produced participation fatigue in highly active areas, making continuity–renewal balancing a strategic task.

Beyond the empirical findings, this study contributes conceptually to scholarship on inclusive innovation and participatory planning in the context of smart cities (Lepore, Testi, and Pasher 2023). Innovation intermediaries occupy an ambivalent position – they facilitate collaboration and knowledge exchange while operating within constraints that limit transformative participation. Therefore, inclusive participation requires rethinking both the temporal structure and organizational design of innovation projects. Rather than short-term pilots, participatory innovation would benefit from being embedded in ongoing governance processes with dedicated resources and continuity (Hofstad, Lægreid, and Karadimitriou 2022). This entails treating participation as infrastructure – shared standards, stable contact points and co-evaluation routines – so that trust and learning persist beyond single projects.

In conclusion, while Helsinki's innovative and engaging planning process has progressed in fostering experimentation and collaboration, the transformative potential of co-creation remains underdeveloped. Moving forward, inclusive urban innovation requires a shift from episodic, project-driven engagement towards embedded, long-term participation that recognizes communities not merely as test-users but as co-designers of urban futures and ensures that citizen-generated insights inform organizational routines and planning decisions beyond pilots.

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ORCID

Lauri Hooli http://orcid.org/0000-0002-7055-2818

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