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Article

Sharing and Space-Commoning Knowledge Through Urban Living Labs Across Different European Cities

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Abstract

While the growing commodification of housing and public spaces in European cities is producing urban inequalities affecting mostly migrant and vulnerable populations, there are also manifold small-scale neighbourhood-based collaborative processes that seek to co-produce shared urban resources and contribute to more resilient urban developments. As part of the ProSHARE research project that investigates conditions in which *sharing* takes place and can be expanded to less-represented populations, we focus here on sharing and space-commoning practices within urban living labs. Considered multi-stakeholders sites for innovation, testing, and learning with a strong urban transformative potential, urban living labs have received increasing academic attention in recent years. However, questions related to whether and how labs facilitate processes of exchange and negotiation of knowledge claims and generate spatial knowledge remain largely unexplored. We address this gap by looking at the role urban living labs play in the regeneration of neighbourhoods, asking how sharing and space-commoning practices generate situated spatial knowledge(s) that can be used in planning processes, and what type of settings and methods can facilitate such processes. These questions are addressed in the context of four ProSHARE-Labs located in Berlin, Paris (Bagneux), London, and Vienna, drawing on a cross-case analysis of the functioning of these hubs, the research methods applied in each context, and on the translocal learning and possibilities for upscaling resulting from these parallel experiences.

Keywords

heterogeneous neighbourhoods; ProSHARE; R-Urban; situated knowledges; spatial knowledge; translocal learning; urban commons; urban living lab

Issue

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1. Introduction

While urban living labs (ULLs) have received increasing attention as sites of innovation, testing, and learning (e.g., Kronsell & Mukhtar-Landgren, 2018; Marvin et al., 2018; Rizzo et al., 2021), questions related to whether

and how they facilitate processes of exchange, negotiation, and co-creation of spatial knowledge between the participating stakeholders remain largely unexplored. To address these questions, we conceptualise “spatial knowledge” through the lens of “sharing” and “space-commoning,” that is, knowledge about a specific space

produced through its situated experiences within existing sharing practices and space-commoning initiatives, which constitute expressions of solidarity and care at the neighbourhood level. Drawing on this, the aim of this article is to examine the potential of different forms of ULLs as innovative and cooperative processes in planning. In particular, we explore to what extent labs contribute to the co-production and implementation of situated sharing and space-commoning knowledge, thereby fostering learning processes at the neighbourhood level and beyond. For evidence, we turn to ULLs in four European cities—Berlin, Paris (Bagneux), London, and Vienna—developed within the framework of the ProSHARE research project that explores the potential of sharing in housing and public space to reduce space competition and enhance inclusion and social cohesion in heterogeneous neighbourhoods. Four ProSHARE-Labs have been developed to support existing sharing practices that put in common spatial resources (e.g., public spaces, ground floor zones, parking spaces) and expand these to less represented groups (e.g., residents from different immigrant backgrounds and generations). Through a cross-case analysis of these labs, the article evaluates the potential of ULLs as a methodology to (a) foster exchange and negotiation between different stocks of spatial knowledge, and (b) generate, transfer, and upscale situated knowledge(s) that can be actionable in planning processes.

2. The Relevance of Sharing and Space-Commoning Knowledge Practices in Planning

2.1. Learning in Planning: Negotiating Multiple Spatial Knowledges

Planning is confronted with a variety of past experiences, future expectations, interests, forms of knowledge, actors, and institutions. Given the growing complexity, “learning in spatial planning” has become a rather difficult endeavour (van Assche et al., 2020). We understand learning in this context as the creation, integration, negotiation, validation, and use of different forms of knowledge that leads to socio-spatial change and results in the transformation of institutional arrangements. Although the literature distinguishes between policy and social learning (e.g., Holden, 2008; Natarajan, 2017)—the former referring to the introduction and accumulation of new planning instruments, skills, and modes of governance; the latter more concerned with a change of attitudes, beliefs, goals, and normative perspectives (Zimmermann, 2009)—they both share an emphasis on the continuous collective generation and deployment of knowledge as a fundamental source in urban transformations. They also entail the identification of an ever-growing variety of relevant stocks and sources of knowledge underlying learning in planning processes.

While the “spatial turn” in social sciences led to the recognition of space as social and relational (Lefebvre,

1991; Soja, 1989), in the field of planning this implied that conceptualisations of spatial knowledge abandoned the previous positivist approach. With the shift into post-modernist planning theory and the so-called “communicative turn in planning” (Healey, 1992), spatial knowledge ceased to be conceptualised as factual, technocratic, and objective, and became increasingly recognised as multiple, diverse, processual, and relational (Rydin, 2007). This implied acknowledging that diverse forms of knowledge are generated in social networks that go beyond traditional “epistemic communities” (Haas, 1992) or planning policy actors (Healey, 2007).

Different conceptualisations of spatial knowledge exist across disciplines and could hardly be subsumed under a common framework. Still, one could agree spatial knowledge is broadly defined as different ways of *understanding space*. Moving beyond technical perspectives on spatial knowledge (as geo-coded or geo-referenced data), Pfeffer et al. (2013, p. 259) define it as a “holistic and perceived spatial ‘comprehension’ of facts, interdependencies, connections, and dynamics that can be mapped, either individually conceived or shared by a group.” Along these lines, mapping has surfaced in recent literature as providing a particular form of spatial knowledge (Dovey et al., 2018), with digital mapping tools thereby serving as a form of participatory spatial knowledge production and management making visible and integrating different forms of knowledge via open digital platforms (Pfeffer et al., 2013). Other conceptualisations of spatial knowledge emphasise its social, subjective, and experiential nature by referring to the “subjective or individual experiences and perceptions of space, imaginations, emotions and affective reactions” (Löw & Knoblauch, 2019, p. 11; Million et al., 2022).

Additionally, the understanding of spatial knowledge draws on research on the contextual and heterogeneous nature of knowledge stocks. The notion of “knowledge orders” (Wehling, 2004, in Zimmermann, 2009, p. 59) for instance, allows distinctions between socio-cultural and temporarily accepted hierarchies of categories of knowledge such as *objective* knowledge versus *subjective* beliefs, or *science-based* expertise versus *lay* knowledge. Rydin (2007) proposes other forms of distinction between “types of knowledge claims”: (a) *empirical* or *experiential* (based on the current state of a situation or the outcomes of a planned action), (b) *processual* (based on the understanding of the dynamics underlying urban transformations), (c) *predictive* (expected developments and trends), and (d) *normative* (as visions of desired outputs). A more widespread categorisation of spatial knowledge remains in the distinction between *expert*, *sectoral*, *community*, and *tacit* knowledge (Pfeffer et al., 2013).

Despite new institutional arrangements and forms of governance that have increasingly shifted the focus towards participation and co-production approaches for integrating different stocks of knowledge (Natarajan, 2017), we still identify *expert* and *sectoral knowledge* as prevalent in spatial planning (Pfeffer et al., 2013).

These forms of spatial knowledge stem mainly from accepted expertise gained via professional education and organisations (and might include other knowledge stocks such as political, institutional and management knowledge). Forms of *tacit knowledge* (i.e., knowledge of individuals with experience such as experts, communities, and citizens, grounded within practice but not explicitly articulated), as well as *community knowledge* such as that of urban initiatives (i.e., knowledge that is context-embedded, community-based, and generated and spread within networks and associational governance forms) often remain fragmented, disregarded, or disconnected from planning processes (de Sousa Santos, 2004).

While Rydin (2007, p. 58) already advocated years back for creating spaces in planning that recognise, test, and validate different knowledge claims, we still know very little about what kind of new institutional arrangements and modes of governance can effectively support collaborative practices of knowledge co-production. Here we argue that ULLs, considered not only as a planning and policy instrument but also as a research methodology, constitute an opportunity for exploring multi-stakeholders processes of exchange, negotiation, and co-creation of spatial knowledge. We argue, therefore, that some forms of ULLs have the potential to operate as “hybrid forums for agonistic collective learning” (Rip, 2003) in which—in line with Habermas’s (2002) theory of communicative action—the creation of new knowledge and testing of alternatives emerge out of the confrontation and combination of different ideas (van Assche et al., 2020) and diverse types of knowledge claims (Rydin, 2007).

2.2. Sharing and Space-Commoning Knowledge Practices

Among the diverse stocks of knowledge that constitute spatial knowledge we deem of particular importance *lay* and *community knowledge* of urban initiatives—citizens’ groups leading innovative and community-based actions pursuing transformative goals in urban contexts. The former, lay knowledge, comprises a situated and contextual knowledge of space, based on subjective spatial experiences shaped by categories such as age, gender, ethnicity, or socio-economic status (Ulloa et al., 2022). The latter, community knowledge, is as Casas-Cortés et al. (2008, pp. 42–43) put it within the larger framework of social movements’ knowledge literature (e.g., Cox, 2014; Della Porta & Pavan, 2017), “embedded in and embodied through lived, place-based experiences, [and is thus able to] offer different kinds of answers than [other] more abstract [forms of] knowledge.” In practice, however, residents’ and urban initiatives’ “situated knowledge(s)” (Haraway, 1988) are rarely put at the forefront of spatial planning processes.

For this reason, we set the focus on this specific form of spatial knowledge, that is the *situated* spatial knowledge(s) of residents and urban initiatives and their net-

works, and, in particular, those that specifically deal with *sharing* and *space-commoning practices* as a way of subverting the growing space competition and commodification of public and residential spaces. Within recent debates on the *sharing economy* (Rutkowska-Gurak & Adamska, 2019; Vith et al., 2019) and *urban commoning* (e.g., Feinberg et al., 2021; Petrescu et al., 2021; Stavrides, 2015), we position ourselves along those who recognise the growing importance of sharing and commoning as practices of resistance against market-dominated urban development processes, acknowledging, however, the inherent exclusions in commoning processes too and the ambivalences and plurality of conceptual sensibilities of these notions (Enright & Rossi, 2018). In this context, we refer to “sharing” and “space-commoning” as more or less institutionalised collaborative practices through which spatial resources and knowledge of space are co-produced, exchanged, and enacted without being commodified. Examples across the world include, among others, practices developed in community gardens, community kitchens, cooperative housing, neighbourhood workshops, and urban commons of all sorts.

Consequently, and drawing on Della Porta and Pavan’s (2017, p. 6) notion of “repertoires of movements knowledge practices,” we refer to *sharing and space-commoning knowledge practices* as the ways by which individual, situated, and subjective experiences, rationalities, and affects related to space are brought together and organised under a shared cognitive framework that gives individuals within a sharing community, civic collaboration units, or larger actors and institutions (con-)figurations a common direction for acting collectively to produce shared spatial resources. In this context, we address the questions of what stocks of knowledge are produced through sharing and space-commoning practices and how these are co-produced, negotiated, exchanged, and implemented within communities of sharing and through larger multi-stakeholder collaborations.

As sharing and space-commoning knowledge practices are enacted by civic collaborations (Foster & Iaione, 2015) mostly including participants from local communities, practitioners, academic, and local non-profit organisations, they often necessitate complex forms of urban governance that include public and private actors (Iaione & Cannavò, 2015). These collaborative configurations do not necessarily have the same motivations and goals and the spatial knowledge they produce is not homogeneous and equally distributed but rather diverse, contrasting, and often conflicting. Diversity and disagreement of knowledge claims, however, can constitute a productive tension in planning processes, a “trading zone” (Rizzo et al., 2021) required for the negotiation of differences in order to reach compromises for the co-production of spatial knowledge. The question remains as to what extent and in which forms ULLs can become this productive “liminal space of contention” (Cermeño et al., 2022) and negotiation.

3. Unravelling the Notion of Urban Living Labs

3.1. Urban Living Labs as a Policy and Planning Instrument

For at least a decade, institutionalised forms of ULLs have proliferated across Europe as policy and planning instruments bringing together different actors from civil society and the public and private sectors to co-create knowledge and test innovations. ULLs add up to the different experiences and local experimental projects of a participatory nature, working at different scales and levels of institutionalisation around the world, that function as laboratories for co-production of space and knowledge (e.g., community training centres, cultural centres, participatory platforms, or grassroots planning networks).

Drawing on the growing ULL literature (e.g., Aquilué et al., 2021; Bulkeley et al., 2019; Scholl et al., 2022; Scholl & Kemp, 2016; von Wirth et al., 2020), JPI Urban Europe (2022) currently posits four main characteristics of labs: (a) they facilitate inclusion and engagement of different stakeholders, (b) they respond to local challenges and contribute to capacity-building, (c) they implement flexible innovation methods and integrate feedback and learning, and (d) they situate knowledge where the problematic to be addressed takes place, often on the neighbourhood scale. The focus on situatedness is key in ULLs. As Karvonen and van Heur (2014, p. 386) point out, ULLs are grounded in locally specific conditions and dynamics to produce “legitimate knowledge” within the urban laboratories as a “legitimising space.” More recent works, however, point to the need for de-/re-contextualising and upscaling the generated knowledge to allow “transurban learning processes” across labs and different urban contexts (Scholl et al., 2022).

Common to most ULLs is also the idea that innovations need to be co-produced by and create value for all involved participants and users (Puerari et al., 2018). On co-production processes, the literature agrees that labs are contingent on the ability of participants to ensure openness by establishing trustful relationships and facilitating participant reflections, open dialogues, and feedback. The innovation’s value, however, remains often contested among stakeholders (Petrescu et al., 2021).

Finally, concerning the researchers’ preconceptions of the outcomes and the anticipation of the learnings developed through ULLs, we consider that the often-prevailing top-down organisational set-up of ULLs and the participants’ role in the co-creation processes need further inquiry. To avoid the top-down nature of some forms of ULL, the ProSHARE-Labs have adopted a participatory action research approach (Soeiro, 2021).

3.2. Urban Living Labs as a Participatory Action Research Methodology in the Context of ProSHARE

The cases explored in the article present different forms of labs and urban contexts (Figures 1 and 2). In Berlin,

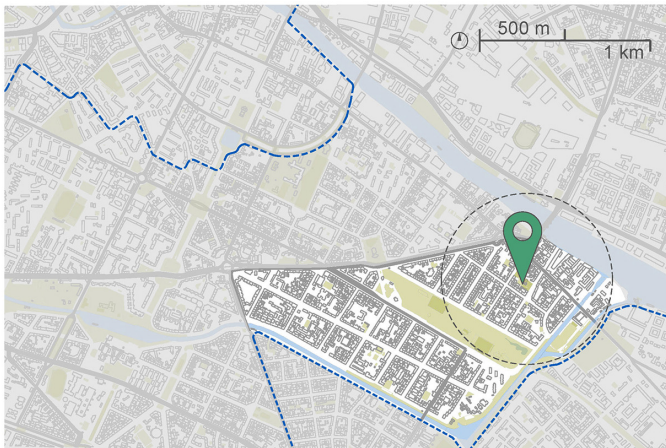
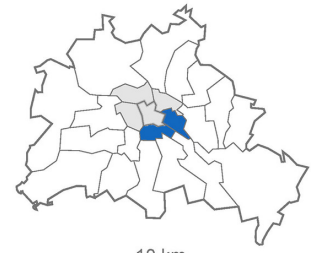
the lab is located in a traditionally politicised central district which faces gentrification. In Paris and London, they take place in the context of two social housing estates, while in Vienna, the lab is situated in a dense (central) neighbourhood whose housing stock remains affordable to young families and new migrants. This variety allows a cross-case evaluation of the labs’ potentials and limitations as multi-stakeholders hubs for (trans-)local spatial knowledge co-creation, negotiation, and exchange. Since the cases are part of a still ongoing project, we can only assess the labs on the basis of the workshops conducted over a period of 10 months (see Figure 3) and draw tentative conclusions on the processes that are not yet finalised.

In order to ensure the possibility of a translocal comparison, transferability, and upscaling (Scholl et al., 2022), the labs are framed under the same methodological strategy based on action research and a user-centred participatory design approach (Dell’Era & Landoni, 2014) to produce sites of situated spatial knowledge(s) co-creation and experimentation (Figure 4). This way, the labs combine in their collaborative practices three *intertwined* dimensions: (a) *co-designing*, (b) *prototyping*, and (c) *self-assessment*, to reflect on the co-creation, integration, negotiation, validation, and use of the produced knowledge. These dimensions can be investigated by looking at five analytical criteria: (a) the specific *focus* of each ULL (as per the context requirements), (b) the forms of *sharing and space-commoning practices* (e.g., what is shared, places, and modes of sharing), (c) the *level of institutionalisation and stakeholders (con-)figurations* (e.g., sharing networks), (d) the *co-production approaches* (for co-creating, integrating, and negotiating diverse knowledge stocks), and (e) the *impacts* of the produced spatial knowledge (i.e., validation, use, and assessment of its transferability and transformative potential).

Through workshops for *self-assessment*, *co-designing*, and *prototyping* (e.g., ranging from temporary built elements, digital spaces for collaboration, or new stakeholders’ networks), labs are mobilised to achieve three main goals: (a) to foster the co-creation (and critical evaluation of) a specific form of spatial knowledge, that is *sharing and space-commoning knowledge*, i.e., knowledge about specific spaces produced through situated experiences within sharing and space-commoning initiatives; (b) to support existing (and test new forms of) sharing practices in the neighbourhood(s) that put in common spatial resources; and (c) to facilitate the improvement and expansion of these towards far less represented groups.

To avoid the pitfalls and shortcomings of top-down approaches to ULLs, the labs are nested in existing local initiatives. This ensures the situatedness of the spatial knowledge generated and enhances the prospects of continuity beyond the research project. Given the contextual grounding of each lab, the participatory methodologies inevitably vary across the cases as they are contingent on the specific stakeholders’ collaborations and users’ requirements.

BERLIN
FRIEDRICHSHAIN-KREUZBERG
WRANGLKIEZ & REICHENBERGER KIEZ
PROSHARE-LAB | KIEZANKER 36



PARIS - BAGNEUX
ProSHARE-Lab | R-URBAN HUB

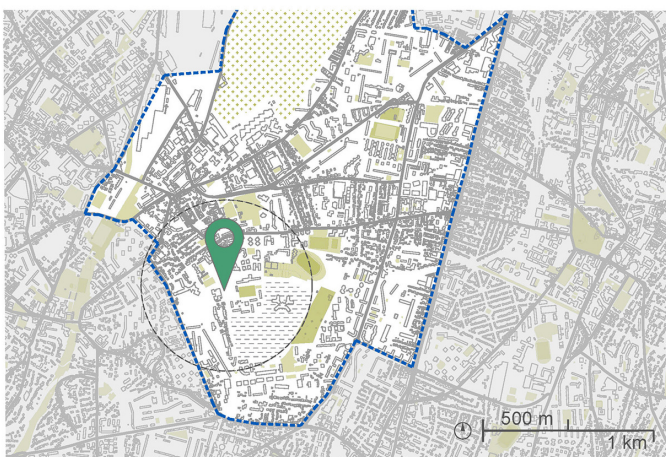
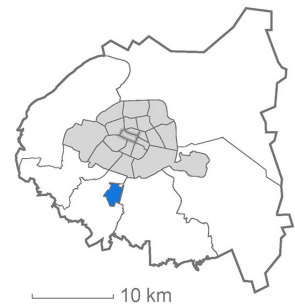
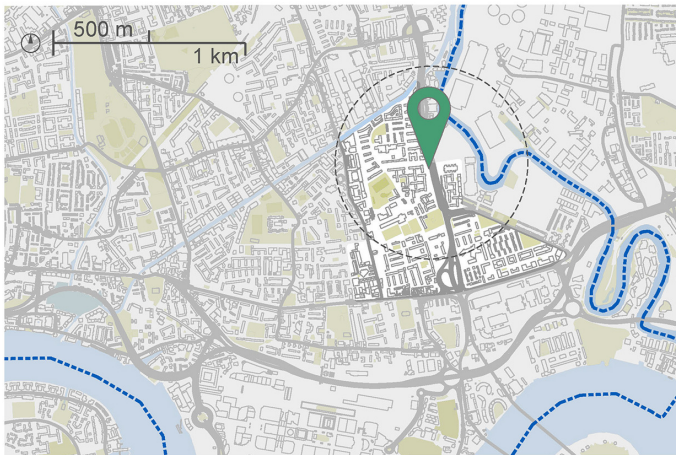


Figure 1. Locations of the Berlin and Paris (Bagneux) ProSHARE-Labs.

LONDON
BOROUGH OF TOWER HAMLETS
 POPLAR
 LANSBURY WARD, EAST LONDON
ProSHARE-Lab | R-URBAN HUB



VIENNA - OTTAKRING
 16TH DISTRICT - WEST VIENNA
ProSHARE-Lab | GARAGE GRANDE

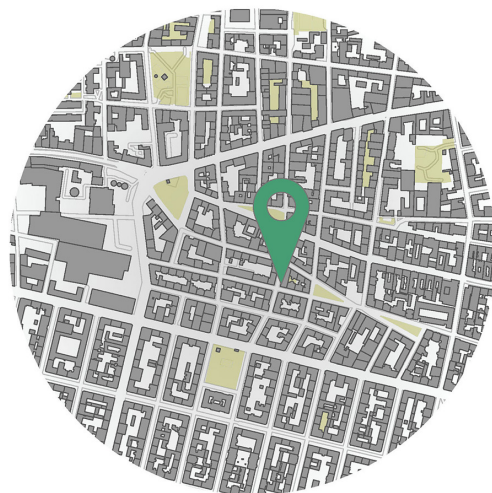
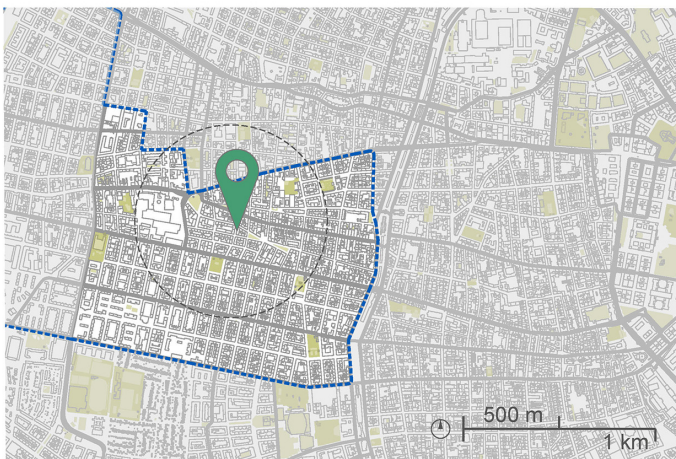
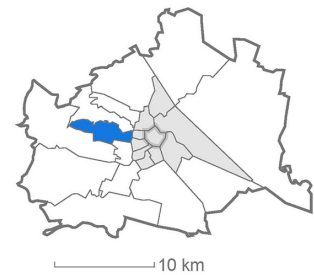


Figure 2. Locations of the London and Vienna ProSHARE-Labs.

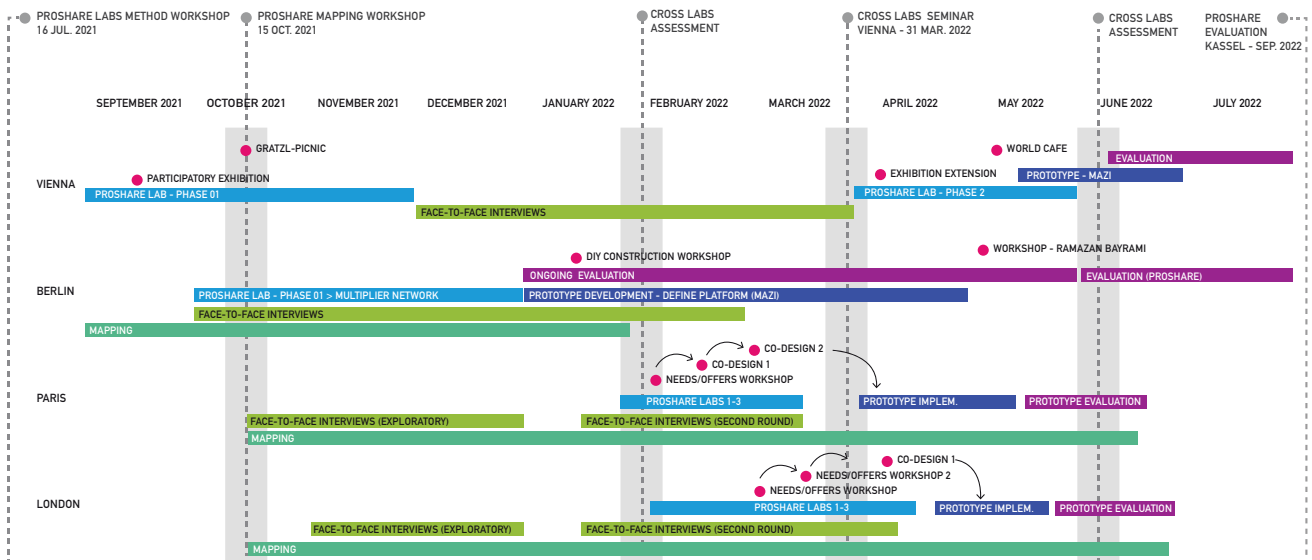


Figure 3. Methodological timeline of the ProSHARE-Labs.

Despite contextual differences, all labs drew on three main research methods applied as part of the shared methodological strategy (Figure 4): (a) *qualitative interviews and groups discussions with relevant stakeholders*, to better understand sharing processes and issues at stake within specific areas of influence; (b) *participatory mapping* to draw situated inventories of existing resources and actors in order to foster new synergies and collaborations; and (c) a *quantitative survey* (ongoing) to generate transnational knowledge about existing forms of and conditions for sharing and space-commoning practices at the neighbourhood level (including paper/pen data collection facilitated through the labs to reach less represented groups). This research methodology applied consistently across the four case studies enables comparative analysis and joint learning across the labs (Scholl et al., 2022). Among these methods, mapping is of particular relevance in all labs. It completes more traditional qualitative research methods by providing a powerful way to aggregate knowledge from different sources (Dovey et al., 2018). It produces spatial knowledge by making visible the types of spaces required for sharing at the neighbourhood level, the social and institutional networks that support sharing and their relation to space, their scope and reach at local, national, and international scales, and provides an accessible way of sharing knowledge among local communities. The specificity of how the overall methodology and selected methods are applied to produce situated spatial knowledge(s) in the context of each lab will be discussed in the empirical section.

4. Exploration of ProSHARE-Labs Across Four European Cities

4.1. Berlin ProSHARE-Lab: Mobilising Sharing and Space-Commoning in an Increasingly Gentrified Neighbourhood

The Berlin lab is located in the Friedrichshain-Kreuzberg district, in the Wrangelkiez and Reichenberger Kiez inner-city neighbourhoods characterised by high building densities and multi-storey Wilhelmine residential buildings with retail and offices on the ground floor. In the 1990s, both neighbourhoods were known for their alternative, left-wing, and working-class residents and their high percentage of Turkish migrant population. Since the 2000s, gentrification processes have increased, caused by growing real estate and rental values. Currently, various initiatives are fighting to protect non-commercial spaces and rent limitations.

Lab activities are interconnected with the transdisciplinary StadtTeilen research network of Germany-based academics, social workers, architects, and planning practitioners. From September 2021 to June 2022, the ULL has developed actions to gain community and tacit knowledge on existing sharing practices in public spaces—i.e., on the subjective experiences of inhabitants about sharing and space-commoning places—and to reflect on the ways in which existing and new (non-commercial) forms of space-sharing could be supported and expanded.

The Berlin lab builds on previous spatial analyses as well as expert and sectoral knowledge gained from interviews with local politicians, representatives from civil society organizations, and housing companies. In the initial phase, participants explored and mapped spaces that constitute locations for sharing in the neighbourhood via a web-based open-source digital

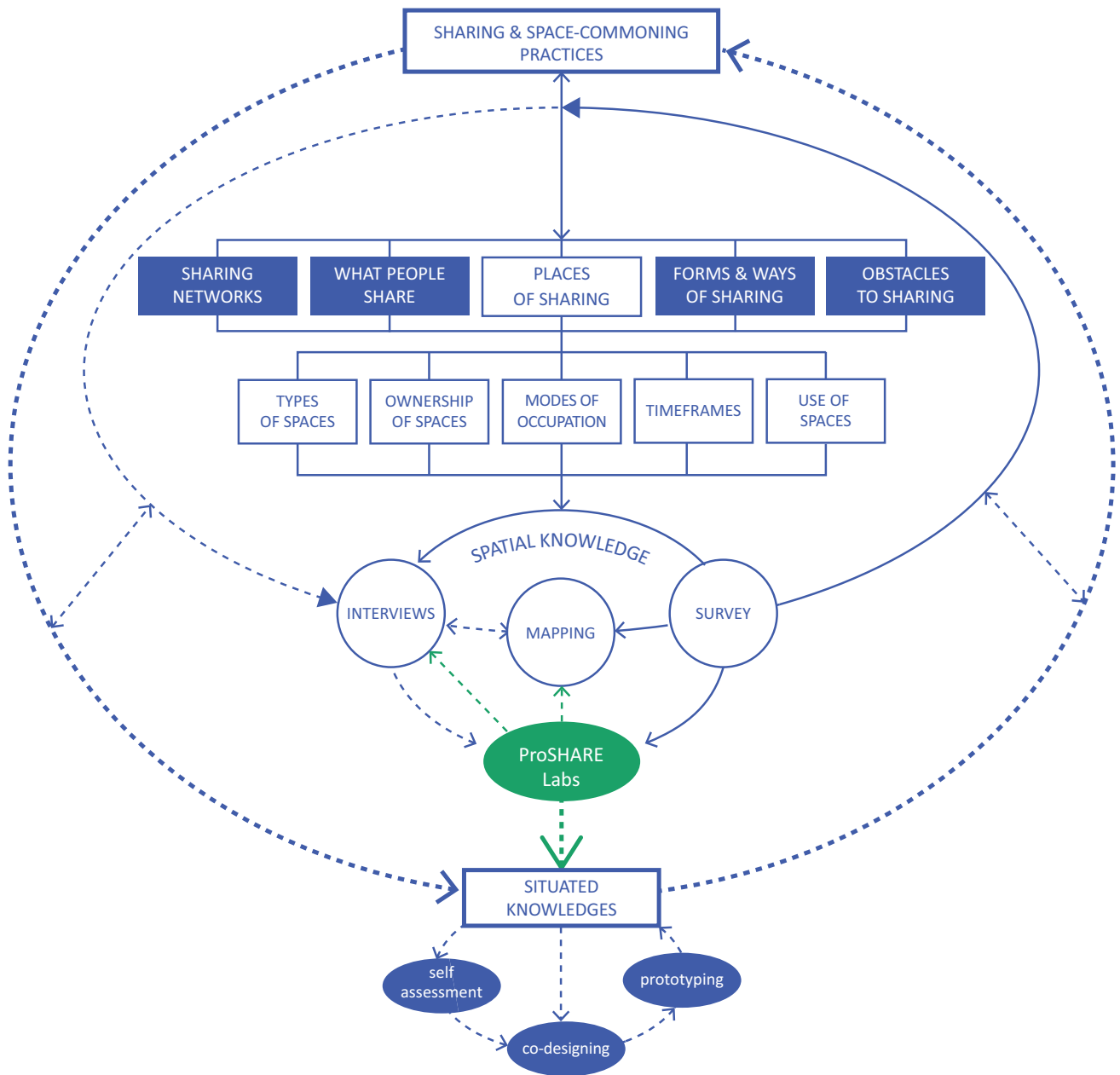


Figure 4. Methodological strategy of ProSHARE-Labs. Graphic design by Carola Moujan.

mapping tool developed by the NGO Adhocracy/Liquid Democracy. Later, this was supplemented via analogue formats (Figure 5)—for example, residents could flag places they experience as important for sharing such as park benches, playgrounds, or sidewalks, and/or comment on existing entries. This constituted a platform-based co-production process that generated tacit and community knowledge on the individual perceptions of space-related sharing practices in the neighbourhoods. Temporary installations also included an exhibition of successful urban sharing practices and artistic visualisations of desired sharing spaces expressed by participants, expanded later with a digital users' *sharing wish list*.

The self-assessment of the generated knowledge served as a basis for designing and later prototyping

(a) architectural interventions in public space that could potentially create new forms of neighbourhood space-sharing practices and (b) a digital space for sharing information, using MAZI, a toolkit for developing local intranets and facilitate digital collaborative processes and DIY networking. At this stage, the lab had integrated among its participants a group of 10 residents cooperating with the local protestant church. Lab participants reflected on and co-designed potential transformations of the public space in front of the church to increase its accessibility and architectural qualities as a *shared space*. Part of the design included herb beds which were prototyped and developed in collaborative construction workshops. These brought together citizens and diverse professionals (e.g., architects, sociologists, urban planners)

combining situated processual knowledge at the intersection between expert and community knowledge.

The community centre Kiezanker 36 played a pivotal role in networking and multiplying the lab's impact, connecting its activities with local initiatives. While the lab did not seek to reach a representative cross-section of the neighbourhood's population, it focused on including a mix of different age groups of newly arrived and long-term residents as well as neighbours from different immigrant backgrounds. Among the participants, there were representatives from local initiatives and civil society organisations (e.g., a citizen initiative promoting a car-free neighbourhood or a community garden group). There was less involvement however of groups not dealing directly with urban development issues. Along with the ongoing evaluation and assessment of previous lab activities, subsequent actions seek currently to (a) involve less represented groups via face-to-face interviews with refugees and homeless and elderly people to better understand how to further expand sharing practices and (b) activate the local MAZI intranet among a citizens group active in the lab.

Preliminary lab results show an important number of existing spaces in which sharing already takes place. These are mainly non-commercial places such as meeting rooms for the elderly, playgrounds, and locations

in which migrant communities meet up. Also places where people share goods such as clothes, books, or domestic appliances. While some of those places have emerged with institutional support (e.g., public playgrounds), other spaces of sharing emerge more spontaneously through the everyday practices of inhabitants. These everyday experiences constitute a stock of situated spatial knowledge(s) of sharing space that, in neighbourhoods facing gentrification, can potentially inform and influence planners and public authorities in their decision-making.

4.2. Paris (Bagneux) ProSHARE-Lab: Inventorying, Enhancing, and Expanding Sharing Practices

The Paris ProSHARE-Lab is located in Bagneux, a town of 40,000 inhabitants in the Parisian suburbs, historically a wine production area, later known also for its market gardening and development of stone quarries. In the early 1900s, the town joined the Red Belt, a group of settlements inhabited by factory workers expelled from the city centre. Since 1935, Bagneux has been run by a left-wing coalition led by the Communist party, an administration that has continuously supported community-oriented initiatives and developed ambitious social housing programs. Even today, the area has one of the



Figure 5. Digital and analogue co-mapping in the Berlin lab.

highest social housing rates in the region. Despite gentrification processes underway in many Parisian suburbs, the town remains largely working-class and cosmopolitan, with employees and factory workers accounting for nearly 38% of the active population and 45% of residents coming from an immigrant background (Atelier Parisien d'Urbanisme, 2021). The lab in this case is nested within Agrocité, a community-built and self-governed eco-civic hub and urban agriculture site founded in 2016, where many sharing activities are organised weekly. Agrocité is part of R-Urban, a participative strategy and network of civic resilience initiated by the architectural practice Atelier d'Architecture Autogérée in 2008 (R-Urban, n.d.).

Agrocité is situated close to Cité des Tertres and Cité des Cuverons, two large social housing estates (*grands ensembles*) typical of the 1960s and 1970s urbanism, recently renovated within the framework of Plan National d'Urbanisme. In spite of their vicinity, residents of the *cités* have not joined Agrocité. One of the goals of the lab is to identify potential reasons for this lack of involvement as well as to devise strategies to overcome the gap. More generally, the lab sought to evaluate what Agrocité has to offer as a sharing infrastructure, tackle spatial and social pitfalls that prevent the development of emerging sharing processes, and identify ways to expand its sharing potential beyond its current limits.

Methods deployed included qualitative interviews, ethnographic observation, mapping, co-designing, and prototyping. Mapping was used as a way to generate spatial knowledge by collecting and analysing information gathered through observations and interviews. It also served as the basis for participatory workshops where participants corrected and expanded the information gathered by researchers based on their own subjective and individual experiences.

Workshops conducted in the lab (see Figures 6 and 7) sought to (a) create an inventory of available resources and foster collaboration between local initiatives (as co-production of empirical knowledge), (b) to enhance existing sharing practices within the hub (as activation of community and processual knowledge), and (c) to expand the group's capacity to include new members and develop wider sharing (as a normative vision based on the notions of inclusion, conviviality, and diversity).

The first workshop consisted of participatory mapping utilising GoGoCarto (an open-source digital cartography tool) with 15 participants from six local organisations in Bagneux, focusing on their relations of sharing, in order to identify and rank needs and resources. These mapping activities revealed two seemingly contradictory facts: continuous financial support from the local administration had boosted sharing activities organised by local organisations in the neighbourhood. Yet, there seemed to be only a few joint actions and very little space sharing despite their overlapping goals. Moreover, the proliferation of institutionalised sharing places seems to have absorbed spontaneous and tactical spaces where sharing happens informally and outside any organised structure. Insights hint at structural causes for this, particularly that public funding is granted to initiatives targeting specific areas with a high number of low-income residents. This leads to competition between actors over available spatial resources in strategic locations (such as the *cités*) and over visibility and social recognition. Another important factor seems related to the involvement of elected officials as volunteers in local associations—an overlapping of social and political networks that appears to have a strong influence on strategies and internal governance of sharing hubs. These preliminary findings highlight the need for further collaboration and mutual support



Figure 6. Self-assessment workshop at the R-Urban Agrocité hub in Paris (Bagneux).

across organisations (rather than competition), in order to address key issues (ecological literacy, civic education, and urban exclusion due to gentrification) and scale their actions strategically to include key publics (youth and women from diverse backgrounds and low-income residents), but also to encourage spontaneity and to highlight the role the Agrocité hub could play in this.

In a second workshop participants recognised multiple links between offers of sharing and the needs of local

organisations which led to identifying and co-designing collaborative project ideas. In a third workshop, three projects were prototyped in terms of initiation, preparation, and realisation, among which two are currently being implemented and require future assessment (i.e., Building Together the Belvédère Garden, involving local youth, and European Capital of Civic Ecology, to make visible, activate, and upscale the civic ecology actions in the city).

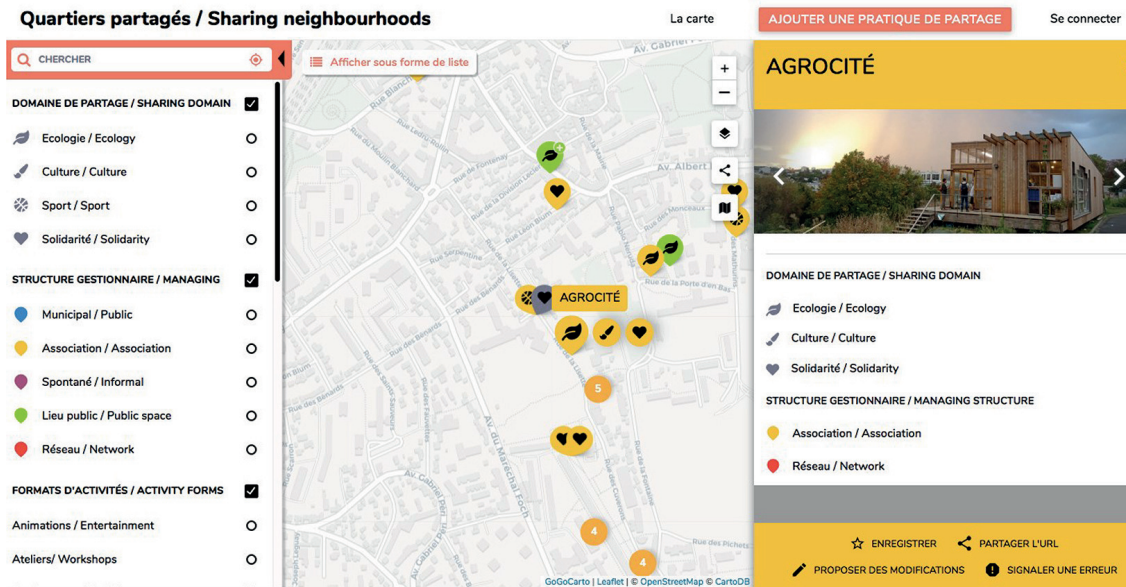


Figure 7. Collaborative digital map and co-designing workshop at the lab in Paris (Bagneux).

4.3. London ProSHARE-Lab: Spatial Clustering of Sharing Practices and Neighbourhood Regeneration Processes

The London ProSHARE-Lab is located within the district of Poplar in the borough of Tower Hamlets, East London, within the Lansbury Ward, an administrative neighbourhood with about 15,000 inhabitants. Poplar sits to the north of Canary Wharf and has a long history dating back to the 18th century in providing housing for London Dock workers and the working class. More recently, Tower Hamlets and Poplar have become centres of the Bengali diaspora in Britain, housing the vast majority of first, second, and third generation families who emigrated since the 1970s. In the Lansbury Ward, the Bengali community accounts for 39% of the ethnic mix, one of the highest in the country. Poplar has a high density of social housing with 57.5% of housing tenure being social rent (London Borough of Tower Hamlets, 2014), the majority of which is administered by the Poplar Housing and Regeneration Community Association (HARCA), a social landlord and charity, set up in the 1990s during the shift of housing provision from local government to housing associations.

The ULL is situated within one of the R-Urban ecocivic hubs on the Teviot Housing Estate, the R-Urban Poplar hub which occupies a temporary use site on a short-term lease. The hub was initiated by Public Works, an art and architecture collective, in partnership with Poplar HARCA. Over a period of four years, this project has transformed a vacant carpark and garages into a thriving community hub, with a focus on environmental education, urban agriculture, and building local resilience through participation in the built environment. Drawing on the shared mutual interest and normative knowledge of commons-based civic resilience, the hub has built a strong network of local stakeholders alongside a wider community of practice.

In the context of the Teviot estate undergoing regeneration processes to increase the housing stock and provide new amenities and services, the objective of the lab is threefold: (a) to generate spatial knowledge of the existing socio-spatial dynamics in relation to the current and predicted state of housing and in particular to understand the existing situation of spaces of sharing, by focusing specifically on the role of community and non-governmental organisations; (b) to focus inwardly on the R-Urban Poplar Hub as an existing space of sharing and to engage local stakeholders in mapping the barriers to sharing for the hub; and (c) to take the learnings from the lab forward as a projection for the future estate, understanding the role of situated community knowledge(s) in the wider regeneration context and how to encourage diverse practices of sharing in its future planning.

The lab has developed three main participatory workshops (Figure 8). The first brought together local experts identified through initial interviews and used relational mapping to generate knowledge on the connections between organisations along thematic lines. Mapping processes highlighted the clustering of informal civic groups, associations, and organisations who engage in sharing at key community nodes, often sharing one facility between multiple actors. The area is fairly unique in the proliferation of hyper-localised community centres on each of the HARCA-managed estates and reflects the strategic role of Poplar HARCA as a powerful and influential actor in the planning and regeneration of the neighbourhood.

The second lab workshop brought together 12 participants from 10 local community organisations in Poplar in a reflective co-production session to identify current barriers to sharing in the neighbourhood. Participants included Bengali food growers alongside

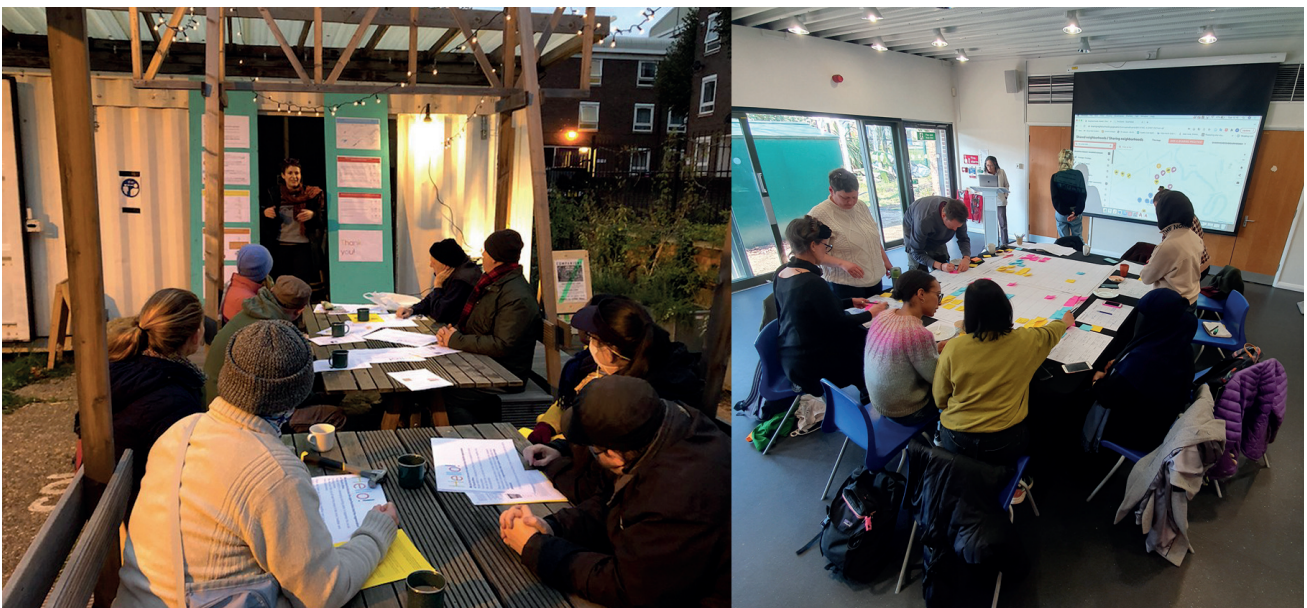


Figure 8. Mapping and co-designing workshops at the R-Urban hub in Poplar.

other professional enterprises, with the aim of developing new governance models for sharing physical resources. The joint session allowed the participants to create new links/relationships and a shared interest in sustaining this new network, and multiple links between offers of sharing (objects, spaces, and experiences) with organisation needs (e.g., sharing of timber/tools between R-Urban and Burcham Street Gardeners/Poplar Union).

The third workshop served as “trading zone” by bringing together participants from the first two actions alongside important strategic stakeholders within local authority planning and housing association development teams to better understand how the emerging community-based learnings could inform the normative vision of the future masterplan of the Poplar area. The workshop allowed participants to identify and prototype three potential collaborative projects i.e., (a) Sharing Solidarity Network; (b) Tool-Resource Sharing; and (c) Green Network and Skill Sharing, for collaborations across multiple sites in Poplar.

4.4. Vienna ProSHARE-Lab: Supporting Networking and Expanding Sharing Practices at the Garage Grande

The 16th district of Ottakring is one of Vienna’s most rapidly growing areas. It is characterised by stark contrasts between the low-density middle-class residential

neighbourhoods on the west and the eastern working-class area with higher population density, larger proportion of immigrant residents, and a comparatively high unemployment rate. Most buildings were constructed before 1919, during the Gründerzeit and are privately owned. Still, the inner part of the district functions as an entry point for migrants and young families because its historical housing stock remains more accessible than public housing.

The Vienna lab has been anchored in the Garage Grande, a temporary use project (2020–2023) developed by the Gebietsbetreuung Stadterneuerung (GB*West), a municipal urban regeneration agency (Figure 9). Located in the middle of the dense, inner section of Ottakring district, Garage Grande has been established in a former multi-storey car-park space, a building facilitated by the property owner (to be later transformed into private housing). The place currently serves as an open space for knowledge exchange and experimentation for different citizen-led DIY initiatives, free of rental costs, and subject to fewer institutional and administrative requirements. This way, it gives visibility to different forms of tacit knowledge of individuals and citizen groups with experience in topics pertaining to circular economy and community building at the neighbourhood level.

Within Garage Grande, the Vienna ProSHARE-Lab constitutes a one-year interface-platform for learning about practices of sharing and forms of self-organisation



Figure 9. Space of the Vienna ProSHARE-Lab within Garage Grande. Source: Courtesy of Tim Dornhaus.

set by a research team in collaboration with the GB*West. It seeks thereby to include plural voices among Garage Grande stakeholders by providing spaces for dialogue, and, in particular, to address underrepresented groups. This is done by reaching out and creating relationships of trust with local initiatives that enable access to marginal communities.

The lab activities are structured in two phases. In the first one, it has secured a physical space for interaction and exchange in which open dialogues on sharing practices have been facilitated by researchers to assemble residents' and urban initiatives' experiential knowledge(s). This was preceded by expert interviews that allowed identifying relevant actors related to existing sharing initiatives in the neighbourhood. In order to collaboratively generate knowledge on sharing and space-commoning, discussions were combined with other participatory methods. Among these, the lab

included group discussions, a participatory exhibition and mapping workshops (Figure 10), that allowed rendering tacit knowledge of local sharing projects and initiatives visible and to foster networking and knowledge exchange among the diverse participants. The exhibition, for instance, invited participants to add and discuss through a pinboard intervention information on spaces of sharing, involved actors, shared resources, and their spatial distribution. With a low-threshold approach to reaching out to different population groups, the (ongoing) exhibition functions also as a platform for disseminating the research results to the general public.

The second and current phase seeks to deepen the discussion on (a) sharing practices, their framework, and conditions for success in general (i.e., to investigate boundaries and potentials of sharing and commoning practices from the perspective of different users) and (b) on the possibilities for the continuation of the Garage



Figure 10. Collaborative mapping at the Vienna ProSHARE-Lab.

Grande (network) in particular. To do that the lab activities include collaborative processes such as a workshop with Garage Grande's urban initiatives and the GB*West, experimentation with open-source digital collaborative tools (i.e., MAZI), and an open discussion concerning sharing practices in housing.

Insights from the first phase of the lab revealed that space-sharing is recognised as relevant among a wide range of participants: It is perceived to contribute to fostering senses of belonging, self-empowerment, and solidarity, enhance mutual community assistance, and facilitate access to more (shared) resources. In particular, participants shared the perception that places like Garage Grande, in which different types of urban commoning practices and social networks can develop and become visible, need to be further facilitated, supported, and maintained. The ULL also allowed researchers to reflect with participants on different socio-cultural dimensions that influence or hinder space-sharing and commoning practices. One of the findings suggests that poverty and associated feelings of shame function as triggers of exclusion in sharing and commoning, dimensions which seem to be often neglected in debates about sharing practices.

5. Discussion

Previous sections explored the functioning of the ongoing ProSHARE-Labs, how they facilitate sharing and space-commoning knowledge practices, and how they foster different forms of co-produced knowledge with a view to test forms of implementing change. Based on these descriptions and our analytical framework of five main criteria—(a) focus/objectives, (b) level of institutionalisation and stakeholders (con-)figurations, (c) forms of sharing and space-commoning practices, (d) co-production approaches and knowledge practices, and (e) impacts of spatial knowledge—we propose the following cross-case evaluation of the labs.

5.1. Focus/Objectives

All ProSHARE-Labs represent non-commercial places which share a transformative goal and overarching objectives—i.e., to explore, test, and expand sharing practices in their neighbourhoods. Within a common methodology strategy, the labs nevertheless adapted their specific focus to address context and users' requirements. The Berlin lab stresses the transfer of the coproduced spatial knowledge into (small scale) planning and architectural interventions (with private and academic sectors alongside residents and urban initiatives), the Paris and London labs emphasise rather the maintenance of existing community-led sharing practices and knowledge claims, while Vienna focuses on networking and knowledge exchange. All labs and their embedded urban initiatives share however the need and challenge to diversify and expand their capacity to include new members.

5.2. Level of Institutionalisation and Stakeholders (Con-)Figurations

Although the four labs sought and succeeded to some extent to use the initial generated knowledge to develop and test sharing prototypes of diverse sorts, they also encountered limitations and pitfalls related to the labs' level of institutionalisation and the characteristics of stakeholders' collaborations. The Paris and London cases benefited from local long-term sustained community-led hubs linked to translocal networks (e.g., R-Urban) that facilitated generating and integrating community knowledge in the development of their actions. The Vienna lab is representative of cases that require more involvement of private-public partnerships to secure shared spaces in the first place in which then to initiate actions and knowledge exchange. The Berlin case, in turn, is illustrative of labs initiated by academic and professional collaborations (despite the central role of the local community group in the processes of co-designing and prototyping) and remains largely contingent to research funding and securing the involvement of public actors for their continuation and implementation.

The plurality of participating actors and differences concerning their engagement in the labs became evident in the cross-lab evaluation processes: from public policymakers, local organisations, and residents (Bagneux, London) to professionals, urban renewal agents, private developers, and urban initiatives (Berlin and Vienna). Yet, labs' participants were not always representative of the neighbourhoods' populations: Certain groups, communities, and individuals of different ages, social statuses, or ethnic backgrounds remained underrepresented. Among communities lacking representation we identified residents with long-term immigrant background (London), recent migrants (Berlin and Vienna), and youth (Bagneux).

Concerning stakeholders' involvement, in the labs located in suburban neighbourhoods with a high proportion of social housing, institutional and local political actors were well represented as *drivers* but also as *blockers* (Bagneux and London). In the labs situated in inner-city neighbourhoods that are characterised by privately owned housing, we recognised a stronger proportion of committed citizens and urban initiatives (Berlin and Vienna). Therefore, in the first case, the labs' actions focused more on creating new commoning activities involving excluded segments of local population (youth, immigrant women, etc.) and generating collaborations (rather than competition) across organisations, while in the second case, they were more concerned with preserving commoning places and sharing activities amid ongoing gentrification processes.

Also relevant was the role played by *researchers* within the different ULLs stakeholders (con-)figurations: In all four labs, (academic) researchers assumed *hybrid* roles, not merely as analysts but also as activists, advisors, and facilitators. The added value of the involvement

of (academic) researchers depended therefore on the ULL context, timeframe, and level of institutionalisation, as they adopted and shifted between different roles for establishing, facilitating, mediating, and/or participating in mechanisms and dialogues for knowledge exchange.

5.3. Forms of Sharing and Space-Commoning Practices

The research showed that a plurality of sharing practices studied within the labs takes place in non-commercial spaces often benefitting from private (as in Vienna and, to a lesser extent, Berlin) or public support (Bagneux and London). Organised and supported sharing practices by the city however sometimes inhibit other more spontaneous and informal forms of sharing. In the context of Bagneux, for instance, some of the sharing practices and the organisations behind them are competing for funding or recognition to the detriment of the whole ecosystem of sharing in the neighbourhood. In the case of Vienna's Garage Grande, sharing practices seem to be somehow *oriented* towards the smooth implementation of planned new developments.

5.4. Co-Production Approaches and Knowledge Practices

Framed within the shared methodological strategy based on self-assessment, co-designing, and prototyping, all four labs resorted to similar methods. These included open digital mapping platforms (Adhocracy in Berlin and Gogocarto in Paris and London) that allowed to co-produce context-sensitive spatial knowledge, informative, analytical, and actionable for the community (Bell & Pahl, 2018). These digital participative tools, whatever their degree of openness and accessibility, did however create exclusions, particularly among elderly and less affluent populations. Therefore, in all labs, they were backed up by analogue modes of participation which are more flexible, intuitive, and straightforward, requiring fewer resources and enabling their implementation in a wider range of settings. This was complemented in Berlin with technically supported digital mapping sessions and training to use the MAZI intranet technology with resident groups including migrant populations. All in all, we can say that all four labs generated both empirical and processual spatial "knowledge claims" (Rydin, 2007), with the aim of becoming normative in their later stages. However, to a certain extent, all labs still acknowledged an imbalance concerning the representation of community and the manifestation of tacit forms of knowledge given the fact that despite the measures taken (i.e., dedicated lab sessions and technical assistance), some parts of the population barely participated.

5.5. Impacts of Spatial Knowledge

The impact of the co-produced spatial knowledge on sharing and space-commoning is twofold. On the one

hand, it influences the participating actors who learned and prototyped "proto-practices" (Kuijer, 2014) of sharing in the neighbourhood. In Bagneux and London specifically, the labs' activities helped to make visible and expand the sharing ecosystem controlled by public authorities. The public actors invited to participate in the sessions understood the importance of these issues. On the other hand, such co-produced knowledge constitutes a basis for planning processes that can be mobilised by different actors such as urban initiatives, practitioners, and policymakers. One of the specificities of the labs is their focus on spaces and places where spatial commoning takes place. Vienna's case puts forward the role of temporary commoning facilities in improving processes of urban renewal, while Bagneux and London's cases highlight the role of new types of built infrastructure for social-ecological transition—the commons-based eco-civic hubs.

All these forms of local learning, spelt in self-assessment processes, could directly benefit local planning processes. In addition, the comparative study across the labs and the incremental implementation of activities in the four different locations (Figure 3) also enabled processes of joint learning that can eventually produce translocal methodological knowledge and upscaling possibilities. The four lab's parallel and related functioning provided the possibility of a different way of learning in planning, a sort of "meta-learning" (Scholl et al., 2022) which goes beyond learning locally.

6. Conclusion

ProSHARE-Labs have stressed the importance of places where processes of exchange, negotiation, and co-creation of spatial knowledge can take place between a diversity of stakeholders—often adopting hybrid roles within complex stakeholder constellations—from urban renewal offices and developers to professionals, policymakers, civic organisations, and inhabitants from different cultural backgrounds, including recently arrived migrants. As such, the labs bring together in one location expert, sectoral, tacit, and community knowledges (Pfeffer et al., 2013) on sharing and space commoning practices.

Preliminary insights from all labs posit that having more sharing and space-commoning in a neighbourhood can support communities to become more resilient towards threats of gentrification and increase their wellbeing. This situated knowledge(s) can further inform planning and public policy on how to protect, support, and co-create a diversity of forms of sharing, including those which take place informally and especially along urban regeneration processes (Petrescu et al., 2021). Moreover, knowledge about who are the enablers and inhibitors of existing sharing practices can become "normative" (Rydin, 2007) and help support ecosystems of sharing through policy and can enlarge the vision of a socially just neighbourhood transformation.

Also, the labs raised the question of the sustainability of temporarily produced urban commons, during neighbourhood transformation processes, highlighting the necessity of supporting existing spaces of commoning which are functioning in temporary locations as “trading zones” for the negotiation of differences (Rizzo et al., 2021), like in Vienna, through providing resources and infrastructures for their expansion. Part of these infrastructures could be the labs themselves which, following the model of the lab in Berlin, can be nested in a community centre, or as the eco-civic hubs in Bagneux and London, can be embedded in long-term processes to gain community ownership and to offer a temporary critical space that can influence these processes. In this way, sharing and space-commoning knowledge become more complex, capturing information about how to sustain over time collaborative modes of making, using, and managing spaces in the city. Despite existing limitations, in particular about the inclusion of less represented populations, these successful labs’ experiences also highlighted the role of long-term involvement of engaged professionals and local experts (designers and social and cultural workers) to accompany and complement the temporary presence of researchers and to mediate processes across different stakeholders.

Based on the spatial knowledge that resulted from the different research phases, which was both empirical and processual (Rydin, 2007), the ProSHARE-Labs were co-designing and prototyping actions to be directly implemented in planning practice by all stakeholders, from experts and policymakers to the community members themselves. Some of these actions concerned the collective physical transformation of urban spaces (Berlin), others the collective activities that shared spaces generate (Vienna, Paris, and London). In both instances, the labs acted as “legitimizing spaces” (Karvonen & van Heur, 2014) and played an important role in the management and deployment of spatial knowledge on sharing and space commoning practices, transforming it into a valuable and accessible resource for the community and the city. Also, the methodological sharing across different labs allowed translocal learning and possibilities for up-scaling of the situated knowledge(s), which otherwise would remain hyper-contextualised, this being often perceived as one of ULLs pitfalls (Scholl et al., 2022).

The labs also advocate for better integration of the added value of co-creative and experimental methods of spatial knowledge production in mainstream planning processes. However, as the research also shows, these co-creative methods can sometimes exclude and therefore fail to capture the full diversity of spatial knowledges. The methodological approaches adopted by the ProSHARE-Labs seek to identify forms of exclusion in sharing (via survey, interviews, and mapping) to later attempt to contribute to their remediation via co-designing and prototyping of propositional actions addressing these forms of exclusion directly. As such, we

tried to demonstrate that carefully inclusive methodologies and long-term processes can make ULLs become a real tool for contributing with *situated spatial knowledge(s)* to further democratic practices of planning.

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Conflict of Interests

The authors declare no conflict of interests.

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