



Chapter 10: Utilizing Urban Living Laboratories for Social Innovation

Sandra Naumann, McKenna Davis, Michele-Lee Moore, and Kes McCormick

10.1 Introduction

Cities have long been recognized as potential hubs of knowledge, social and cultural diversity, jobs, education, public services, and infrastructure (see Scott 1997; Kong 2007; Sassen 2011). Alongside these opportunities, however, cities also face a changing climate, reduced availability of raw materials and natural resources, and dwindling physical space for the built environment. These challenges are accompanied by increasing disparities in income and resultant social inequalities; mounting threats to human health, well-being, and food security; growing refugee and migration influxes; and demographic changes (for example, Coutard et al. 2014; Zhou 2000). These concerns and associated governance challenges increase the urgency for new socially, ecologically, and culturally sensitive approaches to urban development. Such approaches need not only to reduce human vulnerability and environmental footprints, but also to build social cohesion and support ecological sustainability, cultural integration, and the establishment of a shared identity between citizens within a just system of distribution and access to urban resources and wealth (Duxbury et al. 2016).

Conventional public sector models for urban governance are often unexpected or too overstretched to adequately respond to the severity, urgency, and complexity of the outlined challenges (Kieboom 2014). Against this framework and a growing movement for citizen participation in governance processes (for example, Lowndes et al. 2001; Bai et al. 2010; Rosol 2010), many actors are working to transform urban governance to ensure that a greater diversity of voices are accounted for in decision-making processes and urban initiatives. One of the many ways in which urban actors have begun to (re)organize is via the creation of “urban living laboratories,” or simply “urban living labs.” Such labs exist across North and South America, Africa, Asia, Oceania, and Europe,

many of which are connected through an open network organized by the European Network of Living Labs, or ENoLL (see <http://openlivinglabs.eu/>).

While a shared definition of urban living labs has not yet been agreed upon, they are generally understood to involve collaborative research and urban development activities undertaken alongside the intended end users, exploiting experimental platforms and/or approaches in real time. This both fosters the generation of social and technical innovations and allows for ongoing, continuous analysis to take place so that the lessons learned throughout can be applied to the relevant initiative, as well as to other urban contexts (Voytenko et al. 2016; Mulder 2012; Schliwa and McCormick 2016). In the urban context and in relation to this chapter, urban living labs enable citizens and urban actors to create experimental spaces and arenas outside the prevailing governance system as a means to generate novel solutions and engage new actors, collaborations, ideas, and funds.

This chapter explores the role of urban living labs in supporting social and governance innovations that are the subject of social innovation scholarship. That is, this exploration considers how well the practice of creating urban governance innovation aligns with the surrounding theory on the topic. Although different strands of literature have emerged around the concept of social innovation and have varying perspectives and definitions of the term, we draw on a definition rooted in complex systems thinking (see, for example, Westley et al. 2006; Westley 2013). We understand social innovation to be any initiative (including products, processes, programs, projects, policies, or platforms) that challenges and – ultimately – fundamentally alters the defining routines, resource and authority flows, or beliefs of the broader social system in which it was introduced (Westley and Antadze 2010). In the urban governance sphere, social innovations could entail, for example, innovative social-ecological programs or policies, social finance models, new governance modes, and/or novel forms of cooperation, participation, and partnerships that alter the distribution of authority or knowledge and resource flows (González and Healey 2005; Geobey et al. 2012; Klievnik and Jannsen 2014). Despite urban living labs being intended as an experimental space and a platform for generating social and governance innovation, theoretical examinations and practical analysis of the intersection of social innovation theory and urban living lab practices are limited.

This chapter contributes to this discussion by introducing a brief history of urban living labs and the governance challenges they are intended to address, and subsequently exploring whether urban living labs hold potential as a new forum for urban governance innovation experiments to support positive transformative change. We begin by reflecting on two recent cases, a living lab in

Malmö, Sweden, and the Helle Oase lab in Berlin, Germany, building on current literature to deepen our discussion. Recognizing that urban living labs are a relatively new phenomenon and social innovation processes take many decades, this discussion aims to provide a starting point to improve understanding of how different forms of urban living labs are emerging to address current urban challenges and to explore whether these can serve as a platform for social innovations that are likely to lead to systemic change. Such an analysis can contribute to the development of new research questions and hypotheses. Finally, the potential approaches for integrating new social arrangements that emerge from urban living labs within existing urban governance structures are discussed.

10.2 Limitations of Existing Governance Approaches to Cope with Emerging Urban Challenges

Cities often experience governance challenges similar to those faced at the international, national, and regional levels. Consequently, urban areas are forced to grapple with growing inequality and structural injustices and the restructuring of governing agencies and economies underpinned by neoliberal, market-based approaches (Jessop 2002) that largely fail to deliver “the promised efficiency, voice and service integration gains” for city dwellers (Warner 2012). Further challenges include short-term political leadership cycles, competing priorities, budgetary concerns, and an often aging infrastructure that is ill-suited to a changing climate (Birkmann et al. 2010). In parallel, as Bishop and Davis (2002) argue, discontent among citizens about these types of issues has created a strong pressure for all levels of government to adopt participatory processes that ensure a fair and democratic inclusion of previously marginalized voices, enhance transparency and accountability, and improve the management of public services (Grindle 2007). However, participation processes themselves are rife with challenges and may still leave citizen expectations unmet (Bishop and Davis 2002; Irvin and Stansbury 2004).

This combination of factors has led to both a practical and political need for cities to transform their governance frameworks. While opinions and approaches for how best to accomplish this goal are diverse, it is widely acknowledged that such changes require significant shifts in mindsets, partnership constellations, and approaches to governing urban spaces and relationships (for example, Bos et al. 2015; Seitzinger et al. 2012). Resultant governance structures would thus need to be able to contend with complex socioecological systems, the demands and needs of the respective urban populations, and the multiscale issues and interests contained therein.

While some cities have emerged as leaders for creating new and adaptive governance structures and processes which move beyond interests at the local government level, these cases remain limited (examples include the Cities for Climate Change Protection Programme and the Covenant of Mayors for Climate and Energy in the European Union). Where these initiatives of strong leadership and action by cities do exist, they are often undertaken in the absence of, or in direct conflict with, the respective national governments (see Parker and Rowlands 2007).

Although governance transitions face a high risk of failure and require innovation and experimentation to be successful, their potential to address current environmental and societal shortcomings can be significant. In this context, some cities have exhibited an openness to becoming arenas for experimentation and social innovation (Bulkeley and Castán Broto 2013) and serve as a reference for generating knowledge about the emergence, development, and institutionalization of innovation for sustainable urban development (Schneidewind and Scheck 2013; Evans and Karvonen 2014). Urban living labs have emerged as one form of experimental space for social innovation.

10.3 Innovation Pathways for Cities and the Role of Urban Living Labs

Starting mostly as research and development spaces for information and communications technology, the concept of living labs has been credited to William J. Mitchell of MIT (Quak et al. 2016). The concept gradually expanded and drew on interactive processes with diverse actors to address a range of sustainability issues. While literature on the subject is beginning to flourish alongside the growing prevalence of cities being described as laboratories for social innovation, further in-depth exploration of living labs remains limited (Evans and Karvonen 2011, 2014; König 2013; Nevens et al. 2013; Schneidewind and Scheck 2013; McCormick et al. 2013).

Urban living labs have continued to evolve; they are now appearing all over the world and are taking on a new scope (see Box 10.1). More recently, living labs have been used as a tool to reinterpret, challenge, and improve urban governance to better address issues of sustainability. Recent initiatives involve, for example, urban stakeholders developing and testing new technologies, governance arrangements, and ways of living (Bulkeley and Castán Broto 2013). Although urban living labs' physical manifestation may be attached to a defined space, the concept relates more to an approach: intentional collaborative experimentation between researchers, citizens, companies, and local governments (Schliwa and McCormick 2016).

Box 10.1 Global examples of urban living labs

The **Siyakhula Living Lab in South Africa** aims to develop and field-test a prototype of a simple, cost-effective, robust telecommunications platform to reach out to marginalized and semi-marginalized communities. Beyond technology and infrastructure provisioning, the lab provides information and communications technology skills development and training, as well as advice and blueprints for networking and software service provisioning (see <http://siyakhulall.org/>).

The **Lots of Green program in Youngstown, Ohio, United States**, aims to support and empower local citizens to improve vacant lots and design green spaces to mitigate high rates of violent crime and low property values. Lab members successfully tested two types of vacant lot interventions on crime: a cleaning and greening “stabilization” action and a “community reuse” action mostly involving community gardens (Kondo et al. 2016).

The **LivingLab Shanghai, China**, is an educational platform promoting innovation for generating societal construction of knowledge that bridges top-down and bottom-up social innovation processes in a real-world context by involving relevant stakeholders. The lab also develops alternative approaches and solutions to complex problems for sustainability in an environment that includes both megacity challenges and nearby rural areas that are resource limited (see www.openlivinglabs.eu/livinglab/livinglab-shanghai).

The **Adelaide Living Laboratory, Australia**, comprises three property development sites and engages stakeholders to provide pathways for low-carbon living in Adelaide with both local and national significance. The lab focuses on (1) cocreation; (2) integrated energy, water, waste, and transport precinct modeling; (3) energy demand management solutions; and (4) the value proposition for investment in low-carbon development (Berry and Davidson 2015).

Five key attributes characterize urban living labs (Voytenko et al. 2016; Quak et al. 2016; Evans and Karvonen 2014). First, *geographical embeddedness* implies that the labs are embedded in the urban context. *Experimentation and learning* mean that they involve testing, experimenting, and reflexive learning processes, while *participation and user involvement* outline the involvement of multiple partners from different sectors and engagement of users and citizens. Fourth, *leadership and ownership* refer to the labs having a leader or coordinator

that shapes the design of the activities. Finally, *evaluation and refinement* refer to continuous evaluation or assessment that feeds back into improvements, refinements, and learning within the labs.

Researchers are increasingly categorizing urban living labs within frameworks and typologies based on their use of a variety of methods and metrics to support the generation of innovation and learning. For example, Leminen et al. (2012) proposed four types of living labs to capture the range of approaches being employed in cities around the world: utilizer-driven, enabler-driven, provider-driven, and user-driven living labs. These types are defined by the dominant actor in the initial phase of the lab or by the principal promoter of innovation activities later on. They differ in terms of activities, structure, organization, and coordination. *Utilizers* are often companies applying the living labs approach for product-service system development, *enablers* are often but not exclusively local governments representing the public sector, *providers* are mainly research institutions and universities that in some cases host living labs on university campuses (for example, Robinson et al. 2013), and, finally, *users* are people or grassroots organizations that often initiate living labs. This basic framework draws attention to the key role played by the leading actor or coordinator in designing and implementing urban living labs.

In the following sections, we investigate two different urban living labs and draw on the literature to complement these findings and frame them within wider theoretical discussions. Our first case is an *enabler-driven* platform in Malmö, Sweden that focuses primarily on improving the energy efficiency and liveability of existing apartment buildings, reducing greenhouse gas emissions, and increasing social well-being. The second case represents a *user-driven* initiative utilizing collaborative urban gardening to improve social cohesion in a socially deprived neighborhood in Berlin, Germany. We analyze aspects such as the motivations, existing social perceptions and understandings, as well as the aims, objectives, and approaches for each initiative. This also includes a discussion of the actors involved and institutional structures, impacts, benefits and limitations, and future outlooks. The two examples provide contrasting approaches of urban living labs, with the Malmö case being platform-based and city-led and the Berlin case being project-based and citizen-led (see Table 10.1). Given their small-scale spheres of activity and early stages of development, the case study findings are, to some degree limited in their ability to clarify the connection and interlinkages mentioned; nevertheless, they serve to highlight indicative trends and conclusions for further research and actions at the city level.

Table 10.1 Characteristics of the selected urban living labs					
Name	Location	Challenges addressed	Focus	Type of urban lab	Actors involved
Malmö Innovation Platform	Malmö, Sweden	Rejuvenating southeast Malmö (area shaped by former shipping industry)	Improving the energy efficiency and livability of existing apartment buildings	Platform-based, city-led, enabler-driven	City of Malmö, Region Skåne, universities, entrepreneurs, building owners, residents, schools, and so forth
Helle Oase	Berlin, Germany	Lack of common green space in a low strata and densely populated area	Urban gardening and social cohesion	Initiative-based, community-led, user-driven	Local residents; supporters, including: district office, local youth group, nature protection association, medicinal school

Case Study 1 Malmö Innovation Platform – Improving the Energy Efficiency and Liveability of Existing Apartment Buildings

A coastal city in the south of Sweden, Malmö, struggled economically in the early post-industrialization years following the collapse of the ship building industry in the 1980s, which led to a range of other social challenges. Recently, however, the City of Malmö has actively worked to address major societal challenges and to increase the sustainability of the city (McCormick and Kiss 2015) by supporting a diverse range of innovative projects initiated by the city, citizens, businesses, associations, and academia.

One of these initiatives involves the Malmö Innovation Platform. The City of Malmö assumes the main leadership role in the platform, but is supported by a partnership-based steering group when making major decisions. The steering group consists of the City of Malmö, Region Skåne, Lund University, Malmö University, the Swedish University for Agricultural Sciences, Media Evolution, EoN (an energy company), and MKB (a housing company). Sixteen business organizations participate in the platform, including representatives of the real estate, construction and design, energy services and information technology, and consultancy and innovation sectors.

The platform currently focuses on the renovation of existing apartment buildings in low-medium income areas in the southeast of Malmö as part of the city's larger efforts towards sustainable development (McCormick and Kiss 2015). The area faces a multitude of cultural, social, and economic challenges, including the need to renovate many homes originally constructed as part of Sweden's "Million Homes Program" in the 1960s. The infrastructure no longer meets efficiency standards, and the overall liveability of these places has become a concern. The initiative pilots and develops new technologies, services, business concepts, and local jobs while also experimenting with different organizational and collaborative setups between businesses, the municipality, and academia for supporting the renovation of buildings (McCormick and Kiss 2015).

The platform brings together diverse actors, creates space for discussion on urban (re)development, and supports the creation and implementation of urban experiments, which aim to break away from the "business as usual" paradigm. Initiatives are designed to reorganize and restructure relationships inside Malmö and between the key actors in the platform (see Table 10.2). The platform does not carry out projects or innovations itself, but instead supports their initiation and implementation by bringing

together individuals from different organizations and providing starter funds for idea development. Participants share experiences and knowledge gained from the supported projects via the platform, where those experiences are evaluated and, ideally, utilized in new projects (McCormick and Kiss 2015). Platform participants are also attempting to embed technical experiments in a broader discussion about the social organization of the city and the flows of authority and resources.

Ownership of the initiatives is shared by the companies participating in the platform. A key motivation for companies to engage is the enabling of new partnerships and opportunities. All companies invest time and resources into the activities. At the project level, participation goes beyond the partners in the platform and encompasses residents and local organizations, such as schools, community groups, and housing associations.

Table 10.2 Examples of projects supported by the Malmö Innovation Platform

Projects	Description
District heating	EoN (an energy company) performs renovations to district heating systems in existing apartment buildings to test if significant improvements can be made and what benefits for residents might be achieved
Every drop	MKB (a housing company) aims to reduce hot-water usage in apartments by influencing behavior; MKB transfers saved funds into local schools, thereby strengthening the local community and the schools
Recycling centers with maker-spaces	VA Syd (a waste management company) and Malmö University test the potential to combine local recycling centers by reusing materials and “waste” in shared maker-spaces
Local jobs	Trianon (a building owner) puts demands on building companies by including a “social clause” in their building contracts requiring the employment of local people in renovation and building projects

10.3.1 Impacts, Benefits, and Limitations

The Malmö Innovation Platform initially focused less on results and more on identifying the key questions for socioeconomic development in the city, and on developing and enabling collaborative processes, which are challenging to evaluate. To date, the main impact of the platform is the creation of a meeting space for diverse urban stakeholders in which they can share perspectives on challenges, understand the problems from different perspectives, and feed this new knowledge into the process of developing innovative solutions. The platform also serves to integrate projects or experiments which were previously considered as discrete units, by highlighting the lessons learned and using these to inform the development of new initiatives. The convening and coordinating function is necessary, but is in itself is not a governance innovation that transforms the existing urban governance regime. Thus, questions remain whether this is sufficient to lead to a governance innovation.

The Malmö Innovation Platform has initiated over 50 projects since its inception. While its ambitions are clear, a need remains to better structure evaluation processes to ensure that the platform meets its own objectives. Although companies clearly use the platform to test creative solutions and learn from successes and failures, the transferability of the initiatives is difficult to assess. Moreover, it is challenging to determine if this platform supports a step away from “business as usual” or whether it reinforces a pattern of creative elite experimentation which has often led to challenges associated with gentrification (Peck 2005). A key aspect going forward will be to continue to develop the platform so it remains relevant and useful for participating partners and for marginalized communities who are currently not represented by the partnership in the long term.

10.3.2 Outlook and Future Directions

The second phase of the Malmö Innovation Platform began in 2016 and will broaden the geographic scope of the lab across the entire city. It will attempt to tackle many of the barriers identified in the first phase, such as financing new projects (through the provision of some funding for pilot projects) and better connecting citywide visions with experiments and collaborative activities cutting across the government, businesses, community, and academia.

As part of this development, the Sustainable City Accelerator has been established to support innovative players from all sectors in the application of new sustainable urban development solutions. The accelerator will purportedly support the analysis of challenges around Malmö, establish partnerships with the key stakeholders, owners, and clients; develop ideas and solutions of a technical, social, digital, and organizational character; and test and implement solutions in the physical urban development in the city. Innovators from the private, public, and voluntary sectors as well as academia will be able to use the accelerator as an arena for the development of ideas and collaborations. Thus far, however, the discussions have utilized a positive framing about “diversity” and “collaboration” without widely acknowledging the power asymmetries and ways in which such lab processes may disadvantage those without technical knowledge about building construction or about technological innovation.

Case Study 2 Helle Oase, Berlin, Germany – Creating Social Cohesion through Collective Gardening

Helle Oase is a 4,000-square-meter urban permaculture garden for local residents initiated in 2012 in Berlin, Germany. It is the only urban garden in the city and is located in a prefabricated housing (Plattenbau) estate in Berlin-Hellersdorf, which is a densely populated and highly developed area. The area is also known for its low social strata, high unemployment (particularly among young people), and low incomes. The initiative provides an opportunity for collective gardening, creates an open and positive space for the community, and acts as a meeting point for residents. The citizen garden is a multifunctional space containing not only cultivated plots and fruit trees, but also a sitting area for gardeners, a playground, hammocks, a soccer field, and walkable pathways.

Berlin-Hellersdorf is characterized by large and monotonous prefabricated housing estates, resulting in a comparably dense residential area. As is often the case in urban areas, this community is disconnected from food production processes and nature and lacks agricultural land. A centrally located area of fallow land offered a great opportunity to create a place where residents could stay and spend time with their previously unknown

neighbors, thereby also gaining a sense of stability and calm to counteract their often troubled daily lives (Albrecht and Lohr 2015).

Inspired by British urban gardening projects, Helle Oase was initiated by a single individual with support from a core group of other local residents. In order to build a sense of community and to strengthen social cohesion among the residents in the area, these founders emphasized stimulating and maintaining social interactions. Albrecht and Lohr (2015) found that there is a very high level of cooperation through shared norms and values within the project. These repeated social interactions have helped to build trust and enable participants to build a shared identity.

The garden is open to everyone, regardless of an individual's socioeconomic background or ability to participate regularly. Participants are, however, asked to abide by some basic common principles. For example, the burden of work and harvest is to be shared equally. Moreover, any occurring problems are encouraged to be solved in a conflict-free manner.

Helle Oase is supported by a vital network, which is spread across different bureaucratic levels and types of institutions and organizations, including the district office, a local youth group and a nature protection association, a medicinal school, the larger neighborhood, and the core group of residents. The physical area is formally owned by a state-owned real estate agency (Berlin Liegenschaftsfond), but Helle Oase holds the user management rights on a temporary basis. Communication between the gardeners is managed via weekly face-to-face meetings, time spent working together in the garden, and a website. Moreover, the Helle Oase core group interacts with the neighboring community via online and personal invitations to garden parties, informal talks with passers-by, workshops, and employee-friendly gardening hours. The initial funding for Helle Oase was provided by a national European Social Fund program, which ended in 2014, creating the need for alternative financing via a donation platform.

10.3.3 Impacts, Benefits, and Limitations

Although from the outside it may appear to be a simple urban gardening initiative, the Helle Oase is an urban living lab because of its creation of a garden that aims to serve as an experimental space to reveal and test new paths and means for creating social cohesion within a socially deprived area. It also enforces reflexive learning processes by applying simple but common principles in the newly created, common green space.

In addition to the production of low-value physical goods (food, flowers, and herbs), the Helle Oase provides social and educational benefits. For example, the garden serves as a vital and attractive community space; creates a sense of community and group spirit; evokes a high level of identification with the project; increases social cohesion and earned social capital through an open and constructive process to solve problems and make joint decisions; and enhances the process of mutual learning. Finally, the garden creates a high level of cooperation and trust among the participants and serves as an educational tool for spreading knowledge about sustainable gardening. Further, Helle Oase contributes to ecological sustainability and has a positive impact on biodiversity. It is worth noting that these benefits might be restricted to some individuals, or may not be able to be fully explored due to the limited number of actively participating gardeners, or potential conflicts in sharing or stealing the harvest, or vandalism in the relaxation area (Albrecht and Lohr 2015).

The user-driven Helle Oase lab may not have the capacity to change established routines and enable broader societal transformation to the political or authoritative system, but it is nevertheless noteworthy given its emphasis on trust and cooperation building. These processes often require long periods to progress. However, larger transformation processes to improve social cohesion and build social capital (particularly in socially deprived areas) require political support throughout the city. Such action could significantly contribute to the development of new urban community models that are driven by local residents and local interest groups. For these reasons, the Helle Oase case is highly relevant within social innovation discourse, as it represents a valuable example of the many grassroots initiatives appearing in cities across the world.

10.3.4 Outlook and Future Directions

Initiatives such as Helle Oase can provide cost-efficient and viable socioecological solutions to problems associated with densely populated built areas, such as low social strata, unemployment, lack of social cohesion and community sensibility, heterogeneity of citizens, and high crime rates. Conversely, such labs require a relatively high level of social commitment by motivated local residents and the ongoing support of local and regional actors. Regular financial support as well as long-term management (or even property) rights to use open spaces in the community are also key to ensure its sustainability.

This initiative has the potential to be replicated or transferred to other densely populated built areas. Helle Oase has not yet produced follow-up initiatives within Berlin, in part because of the established, vital urban gardening scene which already exists in Berlin. Key challenges looking towards the future include the temporary nature of the contract with the district office, insecure financial support (European funding for Helle Oase ended in 2014; the organization has since relied mainly on donations), and the need for more engaged participants across which the workload associated with the initiative can be better distributed.

10.4 Bridging the Gap between Public Policy, Governance, Urban Living Labs, and Social Innovation

These two illustrative and distinct cases demonstrate that urban living labs can provide a protected space for experimentation and for forming creative collaborations that can, in turn, foster different approaches to resolving societal problems. While these developments potentially lay the foundation on which social innovation processes can emerge, our analysis demonstrates their failure to propel true systemic change in ways coherent with the provided definition of social innovation. In this regard, neither of the case studies has led to any fundamental changes in the defining resource and authority flows or beliefs of the broader social system in which they were introduced. Reasons for these failures may link to the infancy of these initiatives, the lack of political support, and insufficient integration into existing structures (in the Berlin case), or the lack of connecting technical innovations to create new social opportunities (in the Malmö case).

We therefore highlight the need for additional research on the relationship of urban living lab initiatives to overall urban governance. In particular, the following aspects are suggested to be pursued: whether the existing lab forms are truly fostering governance innovations that will create large-scale systemic change, and what the critical success factors and realistic timespan entail. More specifically, there remains a pressing need to answer the questions: How can newly created social arrangements be integrated within existing (political) governance structures to maximize effectiveness in responding to current urban challenges and turn into social innovations that enable true changes within existing governance systems? Can such successful experimental initiatives

developed in urban labs move from small-scale, niche positions to a broader scale? What conditions would be required to facilitate such a move? Although the evidence from the case studies and available literature has provided only insufficient answers to these multifaceted issues to date, an array of interesting insights can be discussed in light of existing literature and pursued further in future research in this field.

For social innovations to emerge, develop, and stabilize, a set of coalition-building opportunities for actors and certain framework parameters must be present (such as the institutional context, welfare regime context, and local political culture) (Cattacin and Zimmer 2016). In this context, urban living labs may offer a platform and a flexible approach to start building such coalitions and to increase connectivity among different actors within the urban area, which will be necessary for more systemic transformative changes (see Westley et al. 2006; Westley 2013). Those innovations that do emerge may be integrated into existing governance systems with various degrees of difficulty. While the Helle Oase still requires strong support and political will at the municipal level, the Malmö Innovation Platform has already been promoted by the local government, demonstrating that different organizational configurations may create better access to the political will that can inevitably be necessary for addressing complex challenges. However, this hypothesis requires further testing with additional cases.

Moreover, existing urban governance scholarship has determined that governance regimes embedded in a federal system or in systems applying the subsidiarity principle are likely to facilitate the greatest emergence and sustainability of social innovations because the local level is in a position to address social challenges independently.¹ Cattacin and Zimmer (2016) found that local self-government and cooperation with nonstate actors such as civil society organizations show a higher level of openness and likelihood for social innovations. In this context, it is promising to see that urban governance increasingly involves nongovernmental actors from civil society and private businesses – a practice in line with the core features of urban living labs (Gerometta et al. 2005). The Malmö Innovation Platform represents, for example, a new interface and form of cooperation between the city and nonstate actors, and is actively engaging with partners to enable sustainability interventions. Such new partnerships and modes of governance can also facilitate significant

¹ Through cross-national comparative research (77 social innovation cases in 20 European cities), the WILCO (Welfare Innovations at the Local Level in Favour of Cohesion) project examined how local welfare systems affect social inequalities and favor social cohesion with a special focus on the missing link between innovations at the local level and their successful transfer and implementation to other settings. See <http://www.wilcoproject.eu>

sharing of knowledge and cultivation of learning processes. In this context, both cases from Malmö and Berlin reveal that urban living labs do not necessarily challenge the existing governance structures. Rather, the experiments act as learning platforms for new urban knowledge, which may eventually inform systemic governance change.

In European cities, Brandsen et al (2016). found that initiatives that remain separate from or insufficiently integrated into urban policies are potentially limited in their expected impacts and ability to address current societal challenges. Social innovations that both complement existing urban development strategies and can contribute to making the respective cities more dynamic and attractive are more likely to be accepted, supported by local governments, and integrated into local welfare administrations securing their sustainability (García-Sánchez and Prado-Lorenzo 2009). However, even in these cases, it is not guaranteed that true impacts on the system will occur.

Innovative initiatives focusing on vulnerable groups living on the fringes of urban society and dealing with social inequities are unfortunately accorded less attention under urban development strategies and political agendas, and are commonly affected by budget cuts. In the specific case of Helle Oase – and as revealed by Ewert (2016) – public funding for innovative capital may diminish in the near future for social innovations, emphasizing the need to develop and establish a new system to enable cooperation between the political administrative system and social innovations. These conditions may also weaken the capacity of cities to integrate such new developments thoroughly into public policies, thereby diminishing their potential to transform into social innovations. Research on urban living labs needs to continue to track whether urban living lab initiatives continue to rely on existing governance mechanisms, such as funding from local governments, or whether they turn to using their platforms themselves to create innovative approaches to financing their initiatives. A host of critiques could emerge from either of those approaches, and the risk is that neither leads to transformative changes responding to identified needs.

Overall, there seems to be a trend of shifting from a hierarchical model of governance to a heterarchical, more participatory structure in cities (Hohn and Neuer 2006). This progression may enable a better horizontal integration of new, nonpublic actors that can provide services for urban society at a large scale. In this context, it is essential that the involved actors recognize each other's roles in the creation of a workable urban society (Cattacin and Zimmer 2016) by creating respect, trust, and even responsibilities and power. Gerometta et al. (2005) go further and suggest that the state should instead adopt an enabling and stimulating role, maintaining responsibility for central problems of societal welfare while promoting an environment for civil society

organizations and the private sector to fuel social innovations and contribute to sustainable urban development. The Malmö Innovation Platform illustrates how such a vision can be achieved, given its strong support from the local city government and its function as a connector of entrepreneurs, property owners, and local residents who want to pursue sustainable urban transformation processes. However, this approach can neglect to confront the potential asymmetrical power dynamics existing in urban areas, requiring that we be more specific when talking about how this represents system transformation, not just a perpetuation of governing approaches that have created inequalities in the first place. Therefore, further research is needed to assess the potential of government-led urban living labs.

The integration of emerging social innovative initiatives and arrangements into existing governance structures to respond effectively to current urban problems remains a challenging endeavor. Nevertheless, we can highlight a few promising outcomes. The capacity of civil society and its networks to develop and establish solutions to current societal challenges and to contribute to more sustainable, liveable, and cohesive cities – as well as to the urban governance arrangements that promote them – should be acknowledged by state and city governments. Making explicit use of self-organization and civil society initiatives (Gerometta et al. 2005) as part of the official urban development agenda and respective action plans, as well as providing room for experimentation, such as through urban living labs, can not only enrich the urban development agenda, but can also contribute to its achievement.

Further actions to enable social innovations and their integration into existing structures may entail a transfer of responsibilities and power to non-state actors and enable a thorough and equal participation of civil organizations across all social strata (for example, ensuring everyone is equipped with voting rights) in local policy processes. The examples of initiatives in Malmö and Berlin do not suggest a transfer of power, but rather attempts to better engage local communities. There is, however, an underlying question of power dynamics. Overall, frequent dialogue and exchange between private companies and business, civil society, and city government should take place (for example, via round tables) to inform public and legal decision-making and strategic decisions at the state and city levels. Urban living labs are a platform for such dialogue and collaborative activities that can span multiple organizations and sectors. Still, urban living labs should try to embed their practices in the systems that they seek to change, should rethink current modes of governing in urban systems, and should approach public authorities to discuss the integration and uptake of their activities (Kieboom 2014).

10.5 Outlook

The outlined case studies offer a small taste of the wide variety of urban living labs and their potential to tackle various societal challenges, including environmental, economic, cultural, and social issues. There remains a clear need to consider how localized, discrete initiatives such as urban living labs amount to larger, system-level change or to transformations in urban governance arrangements (that is, social innovations) and what the critical success factors behind them are. Although urban living labs have proliferated across the world in recent years and have proven to be a valuable and innovative approach to developing new products and platforms for convening and coordinating, it remains too early to determine whether the additive effects of the diversity of technical innovations and collaborative approaches will equate to the change necessary to achieve urban sustainability. However, the examples and literature presented in this chapter suggest considerable potential for urban living labs to contribute to the development of more sustainable cities, increased social justice, and the development of a system which is better prepared to handle future societal and environmental challenges.

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