

Urban walking lab

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CHAPTER 2

THE URBAN WALKING LAB



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CHAPTER 2

THE URBAN WALKING LAB

Written by Jonas Larsen and Sofie Ann White (RUC) – with input from COWI Denmark

INTRODUCTION

This chapter discusses and exemplifies our research design. Inspired by the literature on ‘living labs’ and ‘urban living labs’, we develop an urban walking lab. While the literature on urban living labs is sometimes abstract and vague, we detail how, and with whom, we produce data and insights in the urban walking lab. We begin by discussing living labs, highlighting their defining features and phases and how they compare with other urban research and design approaches. The second part outlines our urban walking lab.

LIVING LABS: A REVIEW

... the concept of living labs serves as an explorative and user-centred space, combining research with innovation processes through a cooperation of the “public-private-people partnership” (Nevens et al., 2013, p. 115).

‘Living labs’ are a relatively recent policy and research phenomenon. In 2006, the European Commission endorsed a European innovation system based on living labs (Dutilleul et al., 2010), and the European Network of Living Labs was formed (ENoLL). Professor William Mitchell originally formulated the concept of living labs at MIT to observe the living patterns of users in smart/future homes (Bergvall-Kåreborn et al., 2009, p. 2; Ballon, Schuurman, Blackman, 2015). These purpose-built labs focused on technologies by experimenting and testing their adaptability in daily ‘natural’ home environments. It became known as ‘a set of methods and a milieu for leveraging user-technology reactions and interactions in the innovation process ...’ (Ballon, Schuurman, Blackman, 2015, np). Overall, it moved towards a more user-focused participatory logic where living lab projects facilitated open innovation in companies (Schuurman, Marez, Ballon, 2016). The initial focus on technology means that the living lab methodology has often been used within the practical and academic field of information and communication technologies (ICT) (Følstad, 2008). Living labs build on the Scandinavian tradition of collaborative design, where user participation in research projects on the development and design of IT applications was central (Ballon, Schuurman, Blackman, 2015, p. 3). It also builds on a European tradition of social experiments with IT where interventions were implemented and tested by users (ibid.). Later, living labs have spread into other fields of innovation, design, and development (Schuurman et al., 2016; Herrera, 2017; Hasselkuß et al., 2017) and academic work.

Schuurman et al. (2015, pp. 1–5) literature review on living labs shows that the practice-based side of the living lab is more developed than the academic side. The literature and innovation

projects have different understandings of living labs (Følstad, 2008; Schuurman, Marez & Ballon, 2015; Bergvall-Kåreborn et al., 2009). Overall, it is described as an open citizen-centric approach to innovation: ‘an innovation milieu and an innovation approach’ (Bergvall-Kåreborn & Ståhlbröst, 2009, np). This twofold explication means that it can serve different purposes. Nonetheless, there is a consensus in the literature that living labs have certain essential features: a focus on co-creation, awareness of users, real-life contexts, and human-centred innovation (Dell’Era & Landoni, 2014, p. 137). As Bergvall-Kåreborn al. argue:

A Living Lab is a user-centric innovation milieu built on every-day practice and research, with an approach that facilitates user influence in open and distributed innovation processes engaging all relevant partners in real-life contexts, aiming to create sustainable values (2009, np).

Somewhat similar, Ballon, Schuurman, Blackman (2015, p. 5) outline five basic elements in a living lab. These are:

- Active user involvement;
- A real-life setting;
- Multi-stakeholder participation;
- Multi-method approach;
- Co-creation.

USER-CENTRIC: ACTIVE USER INVOLVEMENT AND CO-CREATION

The user-centric focus on active user involvement and co-creation defines living labs (Ballon et al., 2015, p. 5; Steen & Bueren, 2017). Instead of relying on the seemingly all-knowing designer or planner, solutions are sought with users – the user is recognised as a source of knowledge and innovation, not merely an object for research and design activities (Higgins & Klein, 2011, p. 33). Thus, living labs are co-creative spaces embracing participatory design; they invite participants to collaborate with researchers and designers during the design and innovation process, for instance, when developing prototypes (Hagy et al. 2017, p. 170f; Dell’Era & Landoni, 2014). It also draws on the ‘action research credo that knowledge and change are produced between researchers and local actors’ (Nielsen, 2006, p. 89). Local involvement is good for innovation, local democracy, and engagement.

A REAL-LIFE CONTEXT/SETTING

Living labs address real-life issues, and all research, testing and experimenting occur in the real world, or ‘in the wild’ (Ballon et al., 2015, p. 5; Bergvall-Kåreborn & Ståhlbröst, 2009; Dell’Era & Landoni, 2014). The closer to the natural and realistic use situation, the more likely it is to generate valuable results (Bergvall-Kåreborn & Ståhlbröst, 2009; Bergvall-Kåreborn et al., 2009; Hagy, Morrison & Elfstrand, 2017, p. 169).

MULTI-STAKEHOLDER PARTICIPATION

Living labs involve collaboration between stakeholders from different disciplines (Herrera, 2017, p. 9). They can include public-private-people partnerships where researchers, public partners, firms, and users develop new solutions together (Schoorman, Marez & Ballon, 2016, p. 8; Bergvall-Kåreborn et al., 2009, p. 2; Ballon et al., 2015, p. 5; Herrera, 2017, p. 9). Bringing together stakeholders from different disciplines and local users facilitates an open co-creative innovative process (Bergvall-Kåreborn et al., 2009) where established attitudes are challenged (Higgins & Klein, 2011, p. 34), and knowledge is generated across disciplines. This co-creation between different stakeholders should happen throughout the innovation process as iterations of design cycles (Ballon et al., 2015, p. 5).

MULTI-METHOD APPROACH

The living labs approach has a participatory focus, use multiple methods, and crosses methodological boundaries; for instance, drawing on ethnography, psychology, design, and engineering (Dell’Era & Landoni, 2014; Hagy, Morrison & Elfstrand, 2017, p. 170; Schoorman, Marez & Ballon, 2016, p. 11; Ballon et al., 2015, p. 5). However, there is no general methodology (Schoorman, Marez & Ballon, 2015, p. 12) or a specific user involvement approach (Bergvall-Kåreborn et al., 2009: np). The living labs are still in methodological development. Below we discuss so-called urban living labs that focus on urban issues.

URBAN LIVING LABS

Urban living labs focus on urban sustainability solutions and innovations within local places concerning, for instance, green infrastructure and mobility (Voytenko et al., 2016; Palgan et al. 2018; Steen & Bueren, 2017; Marvin et al., 2018). They appeal to scholars, practitioners, and politicians because they bring ‘alternatives to life’ and produce knowledge ‘in the real world’ and ‘for the real world’ (McCormick & Hartmann, 2017). Urban living labs are:

means through which to set up demonstrations and to trial different kinds of intervention in the city, from relatively simple technical innovations to more complex or integrated measures designed to contribute to urban social and economic development and wider goals of sustainability (Bulkeley et al., 2016, p. 13).

Living labs enable scholars and practitioners studying and experimenting with technological, social or design solutions to complex urban challenges and provoking transitions (Franz et al., 2015; Hodson et al., 2018):

... at its heart is the idea that urban sites can provide a learning area within which the co-creation of innovation can be pursued between research organisations, public institutions, private sector and community actors (Marvin et al., 2018, p. 1).

As discussed below, Palgan, McCormick & Evan (2018, p. 26) argue that the following five headlines typify urban living labs (see also Voytenko et al., 2016; McCormick & Hartmann, 2017):

- The place-based (geographical) embeddedness;

- Experimentation and learning;
- Participation and user-involvement;
- Leadership and ownership;
- Evaluation of actions and impact.

THE PLACE-BASED (GEOGRAPHICAL) EMBEDDEDNESS

An urban living lab, like other living labs, takes place in a real-life use context, in this case, a geographical place where the research and innovation will take place (Steen & Bueren, 2017) such as ‘a region, an agglomeration, a city, a district or a neighbourhood, a road a corridor or a building’ (Palgan, McCormick & Evan, 2018, p. 26; Voytenko et al., 2016, p. 15).

EXPERIMENTING AND LEARNING

The urban living lab represents a formalised process of place-based innovation where ideas are tested, knowledge is produced, and spatial experiments and innovations can lead to innovations, learning or policies (Bulkeley et al., 2016, p. 13; Voytenko et al., 2016, p. 15). Urban living labs should be open to new and unexpected discoveries and include user-centred experimentation and learning (Palgan, McCormick & Evan, 2018, p. 26). They should be ‘replicated’ to increase urban sustainability in other spatial contexts (Steen & Bueren, 2017).

PARTICIPATION AND USER-INVOLVEMENT

Urban living labs involve co-creation and user involvement (Steen & Bueren, 2017), bringing together ‘citizens, practitioners, decision makers and researchers’ (Palgan, McCormick & Evan, 2018, p. 27) ‘to create more collaborative and experimental ways of ‘doing’ urban development’ (Voytenko et al., 2016, p. 20). Interaction and knowledge sharing are considered crucial. Involving users – especially residents – is essential for enabling the ‘transformative potential’ (Menny et al., 2018, p. 75). While modern architecture and planning were criticised for neglecting the needs and desires of inhabitants (Knox, 2011, p. 49), urban living labs put users centrally in the design process (Burch et al., 2018, p. 204). It is argued that small-scale experiments drawing on user needs and experiences are suitable for advancing bottom-up innovations and ensuring feedback through workshops and events (Juujärvi & Pessa, 2013, p. 25). Such ‘participatory methods’ are now well known in Scandinavian urban planning, where public actors facilitate participatory processes to involve citizens instead of treating them as passive consumers (Sanoff, 2011, p. 11). This gives citizens a sense of ownership of the process and outcomes. ‘Participatory planning’ often only involves users in the ‘visioning process’ (Sanoff, 2011, p. 16); the urban living lab aims to involve and co-create with users and other partners throughout the research and design process. Citizen participation and user-centred design and planning are now widespread in Scandinavia (Sanoff, 2011; Nyseth et al., 2019; Sørensen & Torfing, 2018). In different ways, urban designers and planners invite users to express their opinions and ideas, meaning that design practices are now ‘domains of collective creativity’ (Sanders & Stappers, 2008, p. 5).

LEADERSHIP, OWNERSHIP AND EVALUATION

The urban living lab literature states that ‘having a clear leader or owner is crucial’ because the labs’ ‘effectiveness’ depends on the management and coordination between academic and practical actors with different interests and involvement (Palgan et al., 2018, p. 27). Being aware of different stakeholders’ roles and capabilities is important. For instance, a municipality can be a promoter, enabler, or partner (Kronsell & Mukhtar-Landgren, 2018, p. 988). While the literature suggests that all participants should have decision-making power (Steen & Bueren, 2017), coordination and management, with a delicate balance between controlling and steering, is a necessity. Settling this can be a challenge depending on the source of funding.

Evaluation plans must continuously refine goals and visions between project stakeholders and ‘facilitate formalized learning among the participants’ (Palgan, McCormick & Evan, 2018, p. 27). Iterations, with continuous feedback, evaluations, and improvements, are central to this (Steen & Bueren, 2017). The overall iterative approach means that ‘the cross-functional interaction enables the processes of taking knowledge from one field to another to gain fresh insights, which then facilitates innovative ideas. The shared understanding of the situation informs and enriches the learning processes’ (Bergvall-Kåreborn & Ståhlbröst, 2009, np).

THE URBAN WALKING LAB

In dialogue with the above, we now develop our urban walking lab to study and design place-specific walking practices and spaces. The focus on walking and streets makes our lab distinctive. Our research is place-specific and ‘grounded’, conducted and implemented on selected streets or squares where we examine their design and broader spatial context and how users use, experience, and appreciate them. We research lively streets where infrastructures enable practices and are brought to life through embodied use (see Chapter 1). The lab allows the understanding and tracking of the ‘living’ and ‘lively’ nature of pavement infrastructure, bustling street life, and the particularities of walking in specific places at particular times. We research existing designs and user practices to detect problems and design potentials. Finally, our lab is transdisciplinary and multi-method, bringing together social scientists, urban designers and engineers; using qualitative and quantitative methods; and traditional and intelligent digital methods (see Chapter 3).

The remaining part of this chapter discusses in detail the idea behind our urban walking lab, its different elements and how we ‘enact’ it in different phases and practical steps.

THE PLACE-BASED (GEOGRAPHICAL) EMBEDDEDNESS – STREETS AND SQUARES

Our approach is geographically ‘grounded’ on selected streets and squares. We deliberately speak of streets to highlight that pavements are part of streets and walking is affected by cars, buses, and cyclists and the wider environment of shops, public transport, social life, and scenery. Streets are also public spaces (Collins & Stadler, 2020) where public access and participation are crucial; they are public goods. This approach allows us to explore utilitarian and leisurely walking and how walking experiences are place-specific and contingent on local environments, weather worlds, and seasonality (see Chapter 1).

We work on a small scale to make what ethnographers call ‘thick studies’ of a location and their associated walking practices within a relatively short period. Despite zooming in on named streets or squares, we know they are not ‘islands’; they exist in networks of other streets and places as part of a neighbourhood and wider city. Our approach is also influenced by the work of Cresswell (2021), who argues for the need to develop a ‘local theory’ from in-depth studies of specific streets.

EXPERIMENTATION AND LEARNING – RESEARCH, DESIGN, AND MULTI-METHODS

Urban design and even ‘living labs’ sometimes jump straight into the creative ‘innovation phase’, without considering the present reality or the users. As argued in Chapter 1, walkability studies seldom involve actual walkers. However, we argue – inspired by a design ethnographic (Pink, 2015; Pink et al., 2022) and user-centred mindset – that it is crucial to research and understand a place’s existing walking practices and user preferences before designing something new.

As discussed in chapter 3, our urban walking lab uses and develops a unique toolbox for conducting and making ‘short time ethnography’ (Pink & Morgan, 2013) focusing on user-centric research and design innovations. We analyse how different urban infrastructures affect walking and how walkers use infrastructure before designing new strategies for how walking can be improved and managed. Without such local, place-specific knowledge, there is a real danger that designs will be ineffective (De Siqueira & Al Balushi, 2020).

Based on our analysis of the field data and dialogue with practitioners in the city administrations, we conceptualise prototypes to discuss with users on the street. The concepts are later tested on the streets by making temporary installations studied through various methods, paying particular attention to how to improve walking experiences and flows (Chapter 3). This knowledge provides analytical insight and can direct future improvement and implementation.

PARTICIPATION AND USER-INVOLVEMENT – MUNICIPALITIES AND WALKERS

A user-centric, co-designing approach with stakeholders defines living labs. One stakeholder we engaged is ‘the walker’. The street perspective allows direct contact with pedestrians, making it possible to do ‘live research’ with, and about, them as they walk in their natural habitat. We will interview them and observe their movements and interactions with our designs. In the tradition of design thinking and ethnography, we are interested in understanding peoples’ everyday walking experiences and empathising with their needs, aspirations, and suggestions. They are treated as ‘latent designers’ (Barnes Hofmeister & Stibe, 2017) that can contribute positively to the design process. The other main stakeholder is the municipalities in the three cities with whom we will discuss our ideas, findings, and results.

It is important to stress that users are not only latent designers when contributing to the design process. Equally important, they are ‘designing’ places through their use and appropriation of a place. What a newly designed place becomes partly depends on how people transform them through their habitual use. As the design thinker Kimbell writes:

When the designers have finished their work, and the engineers and manufacturers have finished theirs, and the marketers and retailers have finished theirs, and the customer or end-user has bought a product or started using a service artifact, the activity of designing is still not over. Through engagement with a product or service over time and space, the user or stakeholder continues to be involved in constituting what a design is. Designs (the noun) are constituted in relation to professional designers, customers, and identifiable, known end-users as well as other people who are not known, but also to other elements of practice such as knowledge, feelings, and symbolic structures (Kimbell, 2012, pp. 135-136).

Our co-creation is a 'weak version' where stakeholders and users give valuable input to the design process but are not actively involved in the design process. 'Stronger' versions distribute responsibility, resources, and knowledge equally between partners, with users actively involved in designing (Agger & Tortzen, 2015, p. 8). However, it is 'strong' in diligently researching how users do places and walk in them.

LEADERSHIP AND OWNERSHIP

Multi-disciplinarily, cross-sectional collaboration and external funding often typify urban living labs. Our lab is no exception. This research project is funded by the foundation COWIfonden which 'supports research and development projects at universities or research institutions with long-term perspective and impact on COWI's areas of activity ...' (<https://www.cowifonden.dk/-om-cowifonden>) Thus, the foundation supports research and development projects that lead to new learning and knowledge for the future benefit of COWI and society.

The main partners are Roskilde University and the consulting company COWI, under the leadership of COWI Denmark. The participants are engineers and urban designers from COWI in Denmark, Norway and Sweden and mobilities and urban studies scholars from Roskilde University. The project brings different research paradigms (engineering, urban design, and social science) together in a research and innovation 'experiment'.

URBAN WALKING LAB: PHASES AND STEPS

We now describe the different phases and steps – the iterative process – in our street living lab. The project has an internal cumulative effect as the three local-based test studies build on each other, with knowledge and experiences being transferred from one study to the next.

As visualised below, in each of the three cities, the urban walking lab follows six overlapping and iterative phases (with specific methods, see Chapter 3).

PHASES	THE STEPS
Phase 1 Identifying interesting problems, locations and partners <i>Chapters 1-3 in the Report</i>	<i>Desktop research on relevant academic literature</i> Developing interesting research questions and a solid research design. Forging partnerships and identifying relevant problems and streets with local partners.
Phase 2 Researching walking practices and environments <i>Chapter 4 in the Report</i>	<i>Pre-design fieldwork</i> Conduct fieldwork to understand the existing walking practices, local problems or potentials and local design ideas. Here, the co-creation process starts as users give design inputs to how the street might become more walking friendly.
Phase 3 Identifying local walking cultures, problems and potentials <i>Chapter 4 in the Report</i>	<i>Analysing the pre-design fieldwork</i> Identifying local walking cultures as well as problems and potentials that can inform and inspire local design interventions.
Phase 4 Developing design solutions <i>Chapter 5 in the Report</i>	<i>Designing and prototyping</i> Based on the Phase 3 analysis, different design ideas are conceptualised and co-designed through internal and external workshops and a new round of street interviews to get feedback on the envisaged prototypes. This is an iterative design process with continuous feedback and dialogue.
Phase 5 Researching impact on walking <i>Chapter 6 in the report</i>	<i>Testing prototypes through fieldwork</i> A year after Phase 2, we erect, test and analyse our design through another round of focused fieldwork focusing solely on testing qualitatively and quantitatively if, and how, the design intervention affects practices of walking, solves the identified problem and can be scaled up. We involve users by analysing their movement and interviewing them about the design.
Phase 6 New knowledge and learning	<i>Impact</i> Our research must have an impact and lead to new academic knowledge and practical know-how. We disseminate our concepts and findings in the present report, academic journals, and professional journals.

The urban walking lab process, phases 1-6. Produced by RUC.

SUMMARY

In dialogue with the literature on living labs and design ethnography, we have discussed our notion of the urban walking lab. Our lab is designed to enable research and experiments on specific locations. It can be used to explore place-specific practices, challenges and potentials in specific places. Moreover, it is attuned to human-centred design experiments that can be tested and evaluated as it is used. In the next chapter, we discuss the specific methods in our lab.