

# City labs as instruments to shape common ground in urban sustainability<sup>1</sup>

Christian Scholl, René Kemp, Joop de Kraker

(ICIS – Maastricht University)

As much as the imagery around the goal of urban sustainability has become diversified and thereby blurred to some extent, “urban living labs” as promising instrument to achieve this goal have become a readily available label to stick on a contingent set of practices. Different urban communities of practice have claimed and appropriated the term with differing motivations and to different ends. This paper is based on the ongoing research project URB@Exp ([www.urbanexp.eu](http://www.urbanexp.eu)) funded by JPI Urban Europe. It argues that it is useful to make an analytical distinction between different types of urban living labs. In a first step, we introduce the concept of city labs as one sub-type of urban living labs and discuss their core characteristics. In preparing and testing context-specific strategies, city labs bring together city officials with a variety of stakeholder in order to establish common ground on the urban challenges to be addressed and the solutions to be deployed. In a second step, we sketch the potential contribution of city labs to urban sustainability transitions. In a third, step we discuss certain dangers and provide conditions that need to be in place for city labs to actually realize this contribution.

## Contextualizing city labs

In the past decade, there has been a proliferation of labs outside the traditional domain of science and business. Examples are living labs, in which users can gain experience with new products, design labs for social innovation, and city labs for trying out new approaches of urban governance, planning and citizen participation, fostering partnerships for innovation projects. Different from urban sociologists who see cities as one big experiment (Waste, 1987), STS-inspired scholars (Karvonen & van Heur, 2014) have proposed to see cities as sites for specific experimentation to test novel approaches, these labs are explicitly set up with the aim of experience-based learning. Lessons are actively sought and learning is the hallmark of an experiment. In the academic literature, these types of lab in the urban context are discussed as “urban living lab” (Schliwa & McCormick, 2016; Voytenko, McCormick, Evans, & Schliwa, 2016). We argue here that this term is not exhausting the diversity of lab forms in the urban realm, but nevertheless points to an important antecedent of city labs as experiments with and in urban governance: living labs.

With their focus on user-centered innovation, living labs are an important inspiration of city labs. By involving potential users in real life settings, user feedback can be integrated and emerging problems of prototypes addressed before bringing a refined product to the marketing stage (Almilla & Wareham, 2011; Bergvall-Kareborn & Stahlbrost, 2009; Leminen, Westerlund, & Nyström, 2012). This approach has spread rapidly with more than 170 active living labs registered in the database of the European Network of Living Labs (ENoLL). However, there is no consensus on how to define a

---

<sup>1</sup> A modified version of this symposium paper has been published as “City Labs as Vehicles for Innovation in Urban Planning Processes” in the open-access journal *Urban Planning* (Scholl & Kemp, 2016).

living lab (Veeckman, Schuurman, Leminen, & Westerlund, 2013); some commonly recognized core characteristics of living labs are that they constitute: (i) long-term environments/platforms with (ii) user-centred perspectives using (iii) co-creation approaches and (iv) local experiments in real-world contexts (Hellström Reimer, McCormick, Nilsson, & Arsenault, 2012; Hillgren, 2013).

Another precursor of city labs are design labs. In being less technology-oriented than living labs, design labs are highly relevant to local planning processes, as they apply design-oriented approaches and often focus on urban sustainability. More recently, design labs tend to direct their focus towards broader publics and multiple types of value creation (Björgvinsson, Ehn & Hillgren, 2012; Botero & Saad-Sulonen, 2013; Westley, Goebey, & Robinson, 2012). Labs relating to the research field of participatory design have focused on power issues and democracy, highlighting the need to include marginalized stakeholders in innovation processes—not only as participants but also as collaborators (Björgvinsson, Ehn & Hilgren 2012). City labs could be a way forward to learn about the challenges in creating more reciprocal and mutual relationships between citizens, researchers, and public and private sector agents. To achieve this, they are also much more focused on institutional innovation than living and design labs.

Living labs and design labs are important antecedents of what we will discuss as city labs below. They inspired experimental and user-centered approaches in participatory settings in order to learn about new forms of urban governance. However the concept of city labs also suggests that there are features that are unique to this category of labs. We will briefly introduce these features below and then discuss their potential contribution to urban sustainability transitions.

### **The concept of city labs**

We propose city labs as distinct analytical category to look at urban labs and urban experiments from a governance perspective (Scholl & Kemp, 2016; de Kraker, Cörvers, Scholl & van Wanroij, 2016;). This concept captures how (1) *hybrid organizational forms* (or boundary organizations) (2) focus on *learning about new forms of urban governance* and development in (3) *multi-stakeholder settings* including the local administration, applying (4) *experimental approaches* to (5) understand and solve complex problems in a multi-disciplinary way.

A first characteristic is that city labs are hybrid organizational forms purposefully positioned at the border of local administration and society. Their boundary position helps them to partially evade the established bureaucratic logic of the local administrative apparatus, which is necessary to gain space for experimentation with new approaches. This can be expressed by shared ownership of a city lab by the municipality and other stakeholders. Through their hybrid position, somewhat inside and somewhat outside the local administration, city labs can act as boundary organizations, facilitating interaction between actors from different domains and mediating, but in the best case integrating, the different languages, interests and values of the world of policy, science, local business and citizens.

A second characteristic is that city labs are places of experimental learning and are learning environments for new forms of governance. Regardless of the specific thematic focus within urban development that is chosen, city labs are able to generate insightful lessons into how to reorganize

local urban governance arrangements and transcend specific barriers to change. Usually, this learning process is formalized to some extent, for example through periodic evaluation sessions involving actors from the municipality.

Third, city labs are multi-stakeholder settings including the local administration and focus on co-creation. This is a crucial aspect for working in a hybrid organizational setting. Moreover, it connects to a fundamental realization shared by city officials across Europe, namely that municipalities, while acquiring more and more responsibilities throughout the recent decades, lack sufficient resources, capacities, skills and knowledge to address complex urban challenges. Therefore, municipalities have come to a greater realization that they cannot deal with these challenges alone. Hence, the search for enabling multi-stakeholder co-creation processes through city labs stems from the necessity and desire to find integrated solutions.

Fourth, city labs use co-creation in conducting experiments. This is a highly distinctive feature since local governments usually do not engage in experiments but develop and apply procedures that deliver guaranteed results. In the case of experiments, there is potential for failure. From the point of learning, a project has failed if nothing is learned, casting failure in a new light. Failure in terms of expected or wished outcomes can contribute as much to social learning about new approaches as success can. How to structure and implement the learning process as an inherent part of an experimental approach is a vital challenge for city labs.

Fifth and finally, city labs approach complex problems in a multi-disciplinary way, by drawing on knowledge from different disciplines. This may be done in a deliberate way, or simply be the result of opting for a co-creation approach. Mobilizing and integrating different types of knowledge is often a key part of an experiment. In city labs, stakeholders from various domains work together, in an attempt to create value for all those who are involved: city officials, local NGO's, SME's and researchers.

### **Potential contribution of city labs to urban sustainability transitions**

City labs can contribute to urban sustainability transitions. Focusing experimental learning in urban contexts on governance questions offers opportunities to find innovative approaches for multi-disciplinary problems. Most notably, city labs offer space for city officials and urban stakeholders to jointly shape common ground for urban sustainability action (incl. policies). They have potential to deliver alternative and context-specific pathways that challenges the current path-dependency of urban development. We identified five potential contributions city labs can make to urban sustainability transitions and briefly discuss each of them below. City labs (1) provide space to acknowledge the complexity of urban sustainability (keeping problem definition and solutions open rather than coming up with predetermined fixes); (2) can test abstract concepts in practice; (3) leave space for transdisciplinary dialogue and collaboration; (4) provide space for divergent thinking and conflict; and (5) enable learning about resistance to transition attempts. We briefly explain each potential contribution below.

Because city labs do not work with presupposed solutions but offer a co-creative setting for exploring a problem and possible solutions, they offer more space to deal with complex issues. Keeping the problem definition and solutions open is crucial for this.

Abstract concepts like “smart city” need to be put into practice in order to receive concrete meaning. Especially if we want to test the potential of approaches based on such abstract concepts for contributing to urban sustainability transitions, testing and experimental learning are key. City labs are useful vehicles to explore how smart-city or climate-neutral-city approaches may enhance the governance of urban sustainability.

City labs can leave space for transdisciplinary dialogue and collaboration. For municipal organizations this is a unique chance to work across disciplines and involve stakeholders from other domains. It helps to understand complex sustainability challenges on the urban level in a more integrated way, but also inspires solutions that

If city labs really dare to integrate different perspectives and interests, it will naturally lead to divergent thinking but also conflict. City labs are places where such conflicts can be made productive by facilitating new forms of convergence and of integrating multiple interests.

Sustainability transitions will necessarily meet resistance. City labs can be a good place to learn about the resistance that emerges when trying out new approaches. Understanding resistance helps to anticipate and overcome it. Ultimately, this can make urban governance more robust in setting out lasting pathways for urban sustainability transitions.

## **Dangers**

This last part reflects on four key dangers city labs studied in the URB@Exp project have encountered and that need to be overcome in order to maximize the contribution of city labs to urban sustainability transitions. City labs have less impact if (1) monitoring and learning is not done in a structured way, (2) outcomes and lessons are non-binding, (3) they do not integrate different interests and perspectives, or (4) a broader strategic framework for urban sustainability is lacking. We briefly flesh out each danger below. At the same time, the identified dangers give an idea of the conditions that need to be in place to make city labs more productive for urban sustainability transitions

First, it is easy to forget about learning. One of the city labs studied in the URB@Exp project realized that, after operating for nearly two years, they had not really taken the time for evaluation and learning. The project leader set up a trajectory of several months to learn about the process and the outcomes of the lab together with the main involved stakeholders. For the new phase, monitoring and learning was to become a structured and much more continuous activity. Collaboration with research projects can be very useful here. Learning is a question of time, but also of money.

Second, it is nice if many lessons can be taken from city lab experiments, however, what is the next step? If lessons remain meaningless and without consequences, they are quite useless. This is certainly the case if we talk about governance-related aspects of urban sustainability transitions.

Some city labs have quite explicit strategies for knowledge dissemination (e.g. through lab journals and public events). However, city labs need to feed back to the municipality in some way. Are there city officials and/ or policy makers who feel responsible for picking up lessons and implementing them? In short, city labs need to be connected to decision-making.

A third danger is the lack of integration of interests and perspectives. While multi-disciplinary urban problems often trigger transdisciplinary approaches in urban experiments, this does not necessarily lead to an integration process. Co-creation requires that interests and perspectives are transparent and subject to debate. If differences are not articulated openly, co-creation processes become prone to manipulation by parties (within and outside of the municipality) who want to impose their interest or perspective. Non-transparent power games are harmful for co-creation and reduce the possibility of joint learning.

The final danger is a hard one to address and beyond the control of city labs: the lack of a broader (strategic) framework for urban sustainability. Such a framework is usually provided by the city. Experimenting without bigger strategic questions (and, hence learning goals) runs the danger of getting unfocused and, hence, not very useful in strategic terms. The creation of a strategic framework for urban sustainability, however, is obviously a political task. However, outcomes of city lab experiments / if having some binding character / can inform new strategic aspects and, especially, the governance/related implementation thereof.

## **Bibliography**

Almirall, E., & Wareham, J. (2011). Living labs: Arbiters of mid- and ground-level innovation. *Technology Analysis & Strategic Management*, 23(1), 87-102.

Bergvall-Kareborn, B., & Stahlbrost, A. (2009). Living lab: An open and citizen-centric approach for innovation. *International Journal of Innovation and Regional Development*, 1(4), 356-370.

Björgvinsson, E., Ehn, P. and Hillgren, P-A. (2012). Agonistic participatory design: working with marginalised social movements. *CoDesign: International Journal of CoCreation in Design and the Arts*, 8(2-3), 127-144.

Botero, A. and Saad-Sulonen, J. (2013) Peer-production in public services: Emerging themes for design research and action. In Manzini, E. and Staszowski, E. (eds.), *Public and Collaborative – Exploring the Intersection of Design, Social Innovation and Public Policy*. DESIS Network. 1-12.

De Kraker, J. Cörvers, R. Scholl, C and van Wanroij, T'. (2016). Urban labs – a new approach in the governance of sustainable urban development', in Cörvers, R., de Kraker, J. Kemp, R. Martens, P. and van Lente, H. (eds.), *Sustainable development Reserach at ICIS. Taking stock and looking ahead*, Maastricht: Datawyse/ Universitaire Press Maastricht. (pp 335-346)

Eriksson, M., Niitamo, V. P. and Kulkki, S. (2005) *State-of-the-art in utilizing living labs approach to user-centric ICT innovation - a European approach*. Luleå University of Technology, Sweden, and Helsinki School of Economics, Finland.

- Følstad, A. 2008. Living labs for innovation and development of information and communication technology: a literature review. *Electronic Journal for Virtual Organizations and Networks*, 10(7), 99–131.
- Hellström R., McCormick, K., Nilsson, E. and Arsenault, N. (2012) Advancing sustainable urban transformation through living labs: Looking to the Öresund Region. Proceedings of the Third International Conference on Sustainable Transition, DTU, Denmark.
- Hillgren, P-A. (2013). Participatory design for social and public innovation: Living labs as spaces of agonistic experiments and friendly hacking. In Manzini, E. and Staszowski, E. (eds.) *Public and Collaborative – Exploring the Intersection of Design, Social Innovation and Public Policy*. DESIS Network, 75-88.
- Karvonen, A. and van Heur, B. (2013). ‘Urban Laboratories: Experiments in Reworking Cities.’ *International Journal of Urban and Regional Research* 38(2): 379-392.
- Kommonen, K.-H. and Botero, A. (2013). Are the users driving, and how open is open? Experiences from living lab and user driven innovation projects. *Journal of Community Informatics*, 9(3).
- Leminen, S., Westerlund, M., & Nyström, A. (2012). Living labs as open–innovation networks. *Technology Innovation Management Review*, 2(9), 6-11.
- Schliwa & McCormick. (2016). Living labs: users, citizens and transitions. In Evans, J., A. Karvonen and R. Raven (eds.), *The Experimental City*. Oxon & New York: Routledge, 163-178.
- Scholl, C. and Kemp, R. (2016). City Labs as vehicles for innovation in urban planning and governance, *Urban Planning* 1(4): 89-102.
- Voytenko, Y., McCormick, K., Evans, J., & Schliwa, G. (2016). Urban living labs for sustainability and low carbon cities in Europe: Towards a research agenda. *Journal of Cleaner Production*, 123, 45-54.
- Veeckman, C., Schuurman, D., Leminen, S., & Westerlund, M. (2013). Linking living lab characteristics and their outcomes: Towards a conceptual framework. *Technology Innovation Management Review* 3(12), 6-15.
- Waste, R.J. (1987). *Power and Pluralism in American Cities. Researching the Urban Laboratory*. Westport, CT: Greenwood Press.
- Westley, F., Goebey, S, Robinson, K. (2012). Change Lab/Design Lab for Social Innovation; a thought piece for the development of a new approach for building capacity for social innovation in Canada. On: [http://sigeneration.ca/documents/Paper\\_FINAL\\_LabforSocialInnovation.pdf](http://sigeneration.ca/documents/Paper_FINAL_LabforSocialInnovation.pdf).