

Type of the Paper: Peer-reviewed Conference Paper/ Short Paper

Track title: Human-centered and nature-based approaches in cities

Rethinking Living Labs: Dialogues between Urban and Rural Context

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Research highlights

- Living labs have the potential to act as a bridge between the dichotomies of urban and rural context.
- Living labs enhance the dialogues with the nature-based and human-centered practices.
- Different actors become active actors by exploring, examining, designing, and experimenting in different steps of design, innovation, and development processes.

Keywords: living labs; urban-rural dichotomy; human-centered; nature-based; smart city

Names of the track editors:

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Journal: The Evolving Scholar

DOI: 10.24404/6155df57a72337000
9297582

Submitted: 30 September 2021

Accepted: 01 June 2022

Published: 15 July 2022

Citation: Gürman, A., Ergül Taşkıran, P. & Keskin, E. (2021). Rethinking Living Labs: Dialogues between Urban and Rural Context. The Evolving Scholar | IFoU 14th Edition.

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1. Introduction

The 'Smart city' has recently been introduced as an innovative concept to use Information and Communication Technologies (ICTs) for an improved quality of life, resilience, and sustainability. It ensures to meet the economic, social, and environmental desires and needs of not only the present generation but also future generations. This understanding has evolved through three generations: Smart City 1.0 (technology-driven), Smart City 2.0 (technology-enabled), and Smart City 3.0 (citizen co-creation) (Cohen, 2015). Different from the first two generations, the focus of the third generation, Smart City 3.0 is directed toward citizens and their dialogue with the city through co-creation. It refers to a collective knowledge co-production and exchange process in which citizens are encouraged to think, create, and act together. It proposes creative and innovative spaces in cities: a design laboratory (design lab), a fabrication laboratory (fab lab), and a living laboratory (living lab) (Velibeyoğlu, 2018). This study focuses on the living labs and their potential to enhance the dialogues with human-centered and nature-based practices.

2. Theories and Methods

Living Labs (LLs) are innovative platforms proposing products (an object, a service, a technology, an application, system, etc.) as creative solutions to the existing problems in real-life contexts through exploration, examination, and experimentation by bringing different stakeholders together (Steen & Van Bueren, 2017, p. 10–11). Users, private actors, public actors, and knowledge institutes as actors co-create and shape this innovation process in LLs. In other words, LLs are the networks of different types of actors that stay in these development steps (Leminen, Westerlund & Nyström, 2012). They intentionally develop new ideas, scenarios, concepts, and systems with the integration of research and innovation. With this intention, LLs provide platforms of open innovation networks through human-centered innovation practices. They position themselves in between the human-centered design, and participatory design, and provide a platform for design developments in resolving the sustainability challenges (Dell'Era & Landoni, 2014).

The current mainstream approach of LLs is to focus on ‘other ways of doing’ with small-scale initiatives and experiments through technology-user interaction in real-time and in the urban context. In its common sense, focusing on issues at stake through participation in small scale in LLs seems to provide a self-consistent and self-sufficient understanding. However, these ideal intentions are not always applicable in real life and impose some constraints on social inclusion and upscaling in LL projects. First, LLs experience the problem of social inclusion due to the citizens’ lack of technological, economic, and intellectual resources (Da Schio, 2019). In addition to personal and social incapability, economic and geographical conditions may result in a gap between certain groups having no access to modern information and communication technology. For example, rural areas may experience poor quality or limited access to urban infrastructure services. Thus, people living in rural areas do not have an equal chance to take action for defined issues at stake and work in collaboration with other participants in urban areas. Second, LLs experience the problem of upscaling because they may not take into consideration the social, economic, cultural, and political conjecture (Da Schio, 2019). This prevents LLs from addressing the majority’s current priorities and reaching the broader public to participate. Thus, it is very valuable for the mutual development of urban and rural areas that the proposed creative solutions extend beyond the physical and social boundaries of LLs and reach a broader urban context with its network potential. Although LLs mostly work in urban areas, they have the potential to enhance the quality of life in the rural context. While rural area faces the obstacles such as “the complexities of demographic challenges, consequences of emigration/immigration, ageing of the rural population, climate change, and its implications for the livelihoods of the rural population,” LLs aim to produce contemporary ways of life with a more sustainable and effective matter in ‘social dimension,’ ‘economic aspects,’ and ‘environment issues’ (Zavratnik, Superina & Stojmenova Duh, 2019). In this regard, the study aims to explore the potentiality of Laboratories to take responsibility for the ongoing dichotomic dialogue between urban and rural areas through proposing a co-creative process with target groups and creating a network within the disjointed smart city initiatives.

In this study, the opted methodology is examining different examples in a qualitative form of inquiry with a cross-reading between different cases of LLs around the world. This study categorizes different levels of involvement of urban to rural and rural to urban areas, and how they are from examples of LLs as a framework for future smart city studies.

3. Results

As a global issue, LLs whose aim is to find nature-based solutions in the collaboration of various actors for more sustainable and resilient cities take a central role in sustainable development in cities. Asking the questions such as: what citizens primarily need in an environmental crisis, how much time the development of nature-based projects takes, how citizens take part in the process, and how nature-based solutions linked with ICT solutions are critically substantial in LL initiatives (Chronéer, Ståhlbröst & Habibipour, 2019).

Discussing the potential of LLs to create a discourse on urban-rural dichotomy, LLs from five different cities having similar concerns and intentions from around the world will be examined: Helsinki, Malmö, Yarra, Frascati, and İzmir. These LLs which had different main objectives at the beginning have recently taken nature-based solutions and green infrastructures as their common denominator to prioritize resiliency and adaptivity in their cities (European Commission, 2013).

3.1. Examples of LLs

1. Helsinki LL (Arabianranta): Helsinki Smart City initiative with its multilevel stakeholders and aiming for “a quadruple helix of innovation in a climate of openness, experimentation, democracy, and inclusivity” as De Falco, Margarita, & Jean-Paul (2019) put it. In their review of six EU cities; Amsterdam, Barcelona, Helsinki, Naples, Stockholm, and Vienna; Helsinki steps up collecting all the points on their inquiries on urban core impact and urban periphery impact scores. According to De Falco et al., (2019), the inclusion of urban peripheral areas differentiated Helsinki from its equivalents. This is one of the main reasons why the Helsinki LL, Arabianranta, holds importance in social innovations in local communities with its human-centered approaches. It has an opportunity to interact with its more than 10,000 residents if they volunteer to be participants in the LL. The LL aims to provide services and products through inclusive co-creation processes for the local community of Arabianranta, which is a peripheral district of Helsinki with heterogeneous residents from different economic and ethnic backgrounds (Dell’Era C. & Landoni P., 2014).

2. Malmö LLs: The city of Malmö has become essential with its interlinked three LL structures. Based on the “interventionist innovation” approaches, these LLs are mostly human-centered, but also in respect of sustainability in natural resources. There are three interlinked LLs in Malmö:
 1. The Stage – Located in a culture district in Malmö, the LL “focuses on cultural production and cross-media” through cultural inclusion and collaboration with different stakeholders (Ehn et al., 2014).
 2. The Neighborhood – A “design-driven platform” commissioned by the municipality to encourage “sustainable lifestyle and services.” The Neighborhood LL brings different stakeholders to incubate social innovations that could help the inhabitants of Malmö on a wider scale (Ehn et al., 2014).
 3. The Factory (STPLN) – Located at Västra Hamnen, which is known for becoming an architectural playground after brownfield regeneration; The Factory is focusing on sustainability issues such as recycling, mass production, and climate change through co-creation processes which enhance the production of knowledge, social and democratic innovation, and collaboration (Ehn et al., 2014).
3. Livewell Yarra LL: Based in Melbourne, Australia, Livewell Yarra LL is an initiative which has different stakeholders of the community, local government, and academics. The LL’s initial concern is climate change. It promotes “low carbon living” and “helps communities to decarbonize.” Researchers, government workers, politicians, academics, and community members came together in co-creation processes in workshops, learning groups, and projects to engage the users in more “action-based forms of low-carbon living” (Sharp & Salter, 2017).
4. Frascati LL: One of the first members of EnoLL (European Network of LLs), Frascati LL is located near Lazio, Italy, in the area of Frascati which is a rural area mostly known for its wine production. Interestingly, its increasing number of institutional centers is also the ground zero for technological research in Italy. It focuses on technological developments and sustainability. This is why Frascati LL has three disparate yet intertwining main missions:
 - Help incubation processes of the Space technologies to the non-space sectors,
 - Strengthening agriculture by developing new technologies in precision farming, boosting local tourism, and supporting the agricultural science community,
 - Building an e-professional interface for the community (CO-LLABS, 2007).
5. Sasalı BioLab: Sasalı Biolab (Sasalı Climate Sensitive Agricultural Education and Research Institute) in İzmir, Turkey, which won the first prize of the ISBN2019 Sustainability Award, is a unique attempt of LLs to create a dialogue between urban and rural areas. Developed within the scope of the European Union’s Urban GreenUp program, the project aims to reduce the effects of climate change and to expand nature-based practices in collaboration with academic, local, managing, and contacting actors. It is placed between a strategic point where both nature and industrial production could meet without detriment to each other: While the axis of urban to natural habitat is positioned from east to west; the collective production of mankind, agricultural fields to the natural preservation area lies on the north-south axis. After the projecting and implementation phase in the process, the applications will be tested by academic actors and reported to the EU in the monitoring phase. Accordingly, it will be suggested that similar projects be implemented in other cities.¹

4. Discussion and conclusions

This study uncovers how LLs could engage with nature through citizens and discusses the participatory approach of LLs both in urban and rural areas for envisioning a resilient and adaptive city with green infrastructures. The examples of LLs focusing on the existing dichotomies of urban and rural areas in cities show how these discourses can be connected by creating dialogues with the participation of different active actors. Different from other examples, Sasalı Biolab has the intention to create a discourse on extending the nature-based and human-centered practices from its existing location to other cities. Different

¹ Additional brief information about Sasalı Biolab is obtained from an online interview with Dr. Koray Velibeyoğlu (Department of Urban and Regional Planning, Izmir Institute of Technology).

actors become active by exploring, examining, designing, and experimenting in different steps of design, innovation, and development processes. In this regard, the participatory approach in LLs has the potential to enhance the dialogues between urban and rural areas, and to regain the almost forgotten bond to nature in disjointed urban areas. Another discussion of this bond might reveal the nature of a rigid dichotomy between nature-based and human-centered solutions is a conundrum, a dilemma of Anthropocene Epoch: Protect Nature, to protect the human race in the nature.

Data Availability Statement

Due to the research approach, the findings of different examples worldwide may not give consistent datasets concerning each other. Some LL examples are project-based and completed their missions, therefore there is no influx of regular data each year.

Contributor statement

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Acknowledgements

An initial version of this paper has been studied and submitted to the İzmir Institute of Technology, Graduate School, Department of Architecture in partial fulfilment of the requirements for the Architecture PhD and Urban and Regional Planning PhD Programs, UD520, Design and Innovation in Smart and Resilient Cities, a course conducted by Prof. Dr. Koray Velibeyoğlu.

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