Interreg
Baltic Sea Region

Co-funded by
the European Union

RESILIENT ECONOMIES AND COMMUNITIES
Distance LAB

PROMOTING INNOVATION AND BUSINESS SERVICES IN THE FRAMEWORK OF LIVING LABS IN THE DISTANCE LAB PROJECT

Zane Zeibote, Dāvis Vītols – University of Latvia

UNIVERSITY
OF LATVIA

Promoting Innovation and Business Services in The Framework of Living Labs in the Distance LAB Project

Zane Zeibote, Dāvis Vītols – University of Latvia

1. Introduction

The Living Labs (LL) became visible after the creation of the European Network of Living Labs (ENoLL) – an umbrella organization for living labs around the world, which was initiated by the Finnish EU Council Presidency in 2006. According to ENoLL, LL is known as the most prominent concurrent method for stakeholder engagement in innovation ecosystems, typically used for a Quadruple Helix setting. In addition, LL are user- centered, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings[1]. Living labs encompass diverse contexts, such as local innovation activities started by citizens to improve their everyday lives and the development activities of citizens, companies, non-profit organizations and other stakeholders in developed societies (Nystrom A.G. et al, 2014). Furthermore, they can also be driven by different actors, such as users, providers, enablers and utilizers, and this affects the focus and duration of the collaborative innovation effort (Leminen S. et al., 2012). In general, they offer a space for testing, validation, development and co-creation in all stages of a design and commercialization process (Buhl J. et al, 2017; Leminen S. et al, 2017a).

The Living Labs concept is being implemented in the context of the Baltic Sea Region's interregional cooperation programs'[2] Distance LAB project[3] (2023-2025) as the hub's action model to ensure cooperation between partners' local co-creation LL which will be united into International multi-disciplinary living lab network (IMLLN) and by service sets combined into service production models and made available on the hub's platform.

Distance LAB project aims at creating tools to improve the stakeholders' resilience and adaptability by improving their skills in remote activities. The

[1] Home - European Network of Living Labs, Living Labs network (enoll.org)
[2] https://interreg-baltic.eu/about/
[3] https://interreg-baltic.eu/project/Distance LAB/

developed tools and methods are divided into 3 categories: communication and innovation, sustainability and remote business strategy which are brought together in a hub. All tools will be available on the project platform, and they will also be presented through the Living Labs to achieve more recognition, gather feedback and cooperate with stakeholders. The testing phase of developed tools has been taking place through the services pilots' presentations online and in hybrid settings. This has also initiated and promoted collaboration stakeholders, target group members and associated partners which can become important actors and participants of Living Labs.

The project will bring various benefits to local and international stakeholders. Firstly, LL, involving local stakeholders, will contribute to networking, expert and peer-to-peer support in the changing business environment. Secondly, tested service sets combined into service production models will facilitate business development in partner regions and countries of the Baltic Sea Region, and beyond through the IMLLN development.

The project's objective is to use the Living Labs (LL) approach to create and test innovative service models from previously defined sets of services. Thus, the LL methodology is created, including the co-creation method and the user-driven approach with the engagement of multiple stakeholders (values of the Quadruple Helix) which will act as the backbone to test and verify new services helping to improve them, as well as to promote collaboration between stakeholders of LL on local and international levels.

It has been considered that LLs have rapidly emerged over the past decade as a form of local or regional level experimentation and a governance tool to drive innovative sustainable urban development. The LL process, which integrates both user-driven centered research and open innovation, is based on a maturity spiral concurrently involving a multidisciplinary team in the following four main activities which form the basis of the Distance LAB project Living Labs development:

- Co-creation: bring together new services and prepare them for the application
- Exploration: engage all stakeholders, especially user communities, at the earlier stage of the co-creation process
- Experimentation: test services to experience live scenarios with users
- Evaluation: assess new services and innovative concepts in real life situations.

This is planned that after the Distance LAB partners' living labs will be formed in late 2024 or early 2025, they will start operating locally and will also be integrated into the IMNLL to form a platform for mutual and international networking.

2. Living Labs concept, advantages and disadvantages

The Living Labs concept development is based on the relevance of LL as a widespread experimentation tool to co-create, prototype, test and upscale innovative solutions to (local) needs in real-life, devoted to the experimentation feature with citizen engagement throughout the process, with the main goal of exploring the effect of innovation on users and society and to better calibrate the relevant requirements (European Commission, 2013). The key word "requirements" plays a relevant role in defining the project methodology that bets for the efficacy of the tool, that is only possible when all the current and future requirements and conditions for the products and the services to be tested in the living lab and potentially commercialized in the market, were fully known, and considered.

According to scientific research Living Lab refers to user-centered, open innovation ecosystems based on a systematic user co-creation approach integrating research and innovation processes in real life communities and settings (Ballon P. et al, 2015). Living Labs are both practice-driven organizations that facilitate and foster open, collaborative innovation, as well as real-life environments and arenas where both open innovation and user innovation processes, can be studied and subject to experiments, and where new solutions are being developed.

Leminen S. (2013) defines living labs as physical regions or as virtual realities, or interaction spaces, in which stakeholders form public-private-people partnerships (4Ps) of companies, public agencies, universities, users, and other stakeholders, all collaborating for creation, prototyping, validating, and testing of new technologies, services, products, and systems in real-life contexts. And this is the first time LL is mentioned as a virtual reality.

However, Veeckman C. et al (2013) found that, despite more than the decade of LL activities all over Europe, empirical research into their practical implementation and related outcomes is lacking. The only systematic review of studies of LLs from this perspective was conducted by Schuurman D. et al (2015). These authors also concluded that empirical evidence about their performance is lacking, while Hossain M. et al (2019) found that "understanding how living labs perform in multifaceted situations, as well as the power distribution in the networks and governance, is essential".

According to the ENoLL the number of LLs in the network since its' launch in 2006 was more than 460, with over 150 active LLs subscribing to the ENoLL network worldwide in the beginning of 2024. The concept of LLs has become a strong theme already in the EU's Seventh Framework Program 2007–13, mainly in the fields of smart services and e-governance (Paskaleva K. et al, 2015). In the Horizon 2020 programme, the topic of Living Lab evolved within the field of collaborative co-creation processes and structures for innovative solutions to large societal challenges mainly in transport, energy use and ICT. More recently LL has been presented as a

useful instrument to detect community needs, improve local development and support and integrate technological and social innovations in policies and local governance processes (Paskaleva K. et al, 2015), as well as helping to make a city smart (Nesti G., 2017; Paskaleva K. et al, 2017).

According to the literature research, the public innovation instrument chosen to facilitate multi-stakeholder engagement, co-creation, and the alignment of interests is the Living Lab, given that it enables all stakeholders to con- tribute their vision, especially businesses, especially small and medium enterprises (SME), the ultimate recipients of services. In this sense, LL was selected as the most appropriate mechanism to address the objectives of the Distance Lab project. It will provide a novel hybrid approach to the experimentation space aimed at testing the pilots by the end users to facilitate market approach. This will also make it possible to identify potential regulatory barriers if any, as well as provide a collaboration platform for stakeholders and end users.

LLs are complex partnerships, as they facilitate not only university–industry relationships but also relationships between large companies, SMEs, and startups, resulting in 4Ps. They are mostly initiated and funded by policy makers with national or regional policy objectives in mind (Katzy B.R., 2012) where they function as "innovation intermediaries" to overcome the gap between R&D and market introduction (Schuurman D. et al., 2019).

A critical element of organizing LL is the involvement of stake- holders and end users. Therefore, methods for involving users, such as the Mapping user-innovation methodology must be considered. This methodology is based on the following approaches (Imirall E. et al., 2012 / see Figure 1):

– User centered. Users are mostly passive subjects of study. This is the case of usability testing, human factors, and applied ethnography.

– Design driven. Designers take the lead. Design-driven methodologies normally work in r4eal-life environments; however, they are led by designers who seek to find novel solutions.

– Participatory. Users are considered on equal ground with the rest of the partners in a co-creative process. Participatory design, particularly the Scandinavian tradition, and generative design research belong to this category.

– User driven. Where the user is the one who drives innovation process. Such is the case of open source, lead users and living labs.

The LL concept also involves several advantages and disadvantages which should be considered by those developing LL. According to Steen et al (2017) Living Labs have a high potential for innovation, as well as a high potential for systematic learning and replication of innovation. At the same time, it is a process which requires effort, capacity and time, and is not a short-term solution.

Once Living Lab is in place it can provide more sustainable solutions considering the involvement of stakeholders and respecting their

requirements. Still, LL are based on experimentation, which can entail failures.

The LL environment ensures that the gap between production and uptake is closed and reduces risks of policy and business failure as decisions are taken collectively. However, successful results very much depend on the experience of stakeholders, good management of co-creation processes and a particular mindset. If these preconditions are not met, then success can't be guaranteed.

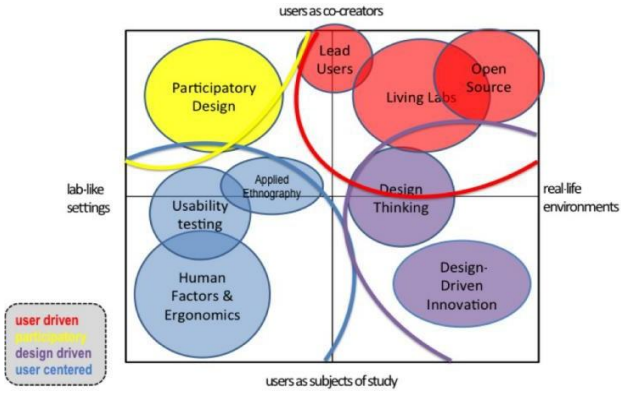

Figure 1. Mapping user-innovation methodologies
Source: Imirall, E. et al, 2012

A great advantage of Livign Lab is that they ensure better match with local, cultural, and institutional contexts and creativity potentials, as well as ensure a better utilization of existing knowledge and inventions. Nevertheless, working according to the LL approach may require actors to abandon their usual culture and/or the way of working (see Table 1).

Table 1. Advantages and disadvantages of the Living Labs' approach

Advantages	Disadvantages
• High potential for innovation (thanks to the multidisciplinary and multi-stakeholder approach)	• Not a direct path to a short-term solution
• High potential for systematic learning and replication of innovations	• Needs large investments in terms of coordination, organization, management, and supportive tools
• More sustainable solutions thanks to the integration of all stakeholders' requirements	• Experimentation entails failures

• Closed gap between product production and uptake	• Successful stakeholder participation requires expertise
• Reduced risk of policy and business failure	• Successful co-creation requires a particular mindset
• Better match with local, cultural, and institutional contexts and creativity potentials & better utilization of existing knowledge and inventions	• Working according to the living lab approach may require actors to abandon their usual culture and/or way of working.

Source: Steen et al (2017)

For the success of LL, it is important that all living lab stakeholders are included from the very beginning, to arrive at the co-created and integrated solutions. In the case of the Distance LAB project, partners working with local stakeholders have started early enough and that lays a good basis for their further involvement in their Living Labs.

3. Main approaches and methods for activating Living Labs

The term "living labs" often refers to both the methodology and the instrument or agency that is created for its practice. The purpose of the Distance LAB project is 1) to use the LL as a method for involving users of ser- vices as co-creators on equal grounds with the rest of participants and 2) to ensure the experimentation or testing of pilots in real-world settings.

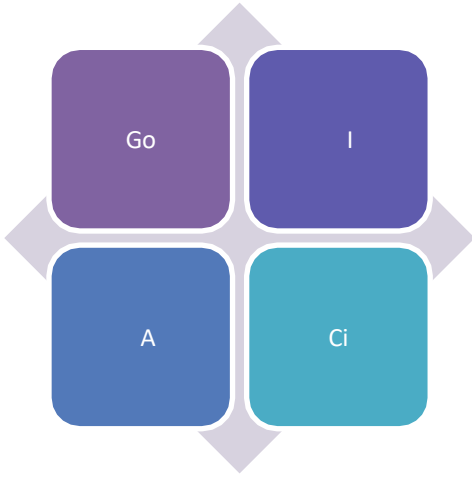

Figure 2. Quadruple Helix Model
Source: https://grrip.eu/why-is-quadruple-helix-engagement-so-important/

Stakeholders are instrumental part of Living Labs. Therefore, the involvement of experienced stakeholders with appropriate mindsets from the very beginning is the basis for success in activating and running LL. The selection of stakeholders very much depends on the nature of LL and its expected activities. However, one of the most common approaches for organizing a group of stakeholders with complementary knowledge and experience is the Quadruple Helix Model. This approach is also used in the case of the Distance Lab project to bring together the public sector, industry, academia and civic society, namely main stakeholders and end users. The Quadruple Helix is the most used organizational set-up for ecosystem collaboration and often used for business clusters (see Figure 2).

The role of each actor in the Living Labs concept:

– Government (Public Sector): This helix represents government agencies and institutions. Government plays a crucial role in creating policies, regulations, and providing resources to support innovation.
– Industry (Private Sector): This helix encompasses businesses, corporations, and industries. The private sector is responsible for driving economic growth, creating jobs, and producing goods and services. Collaboration with other sectors in the Quadruple Helix Model helps in aligning business goals with societal needs and fostering innovation.
– Academia (Knowledge Sector): This helix includes universities, research institutions, and educational organizations. Academia is essential for generating new knowledge, conducting research, and educating the workforce. Collaboration with other helixes enables the transfer of knowledge from academic institutions to practical applications in the real world.
– Civil Society (Social Sector): This fourth helix represents non-govern- mental organizations (NGOs), community groups, and citizens. Civil society brings in the perspective of societal values, ethics, and social needs. In the Quadruple Helix Model, involving civil society helps ensure that innovation aligns with ethical considerations and addresses the broader interests of the community.

Once the stakeholders' group is organized and participants of LL need to be activated, it is important to choose the right tools and methods to work with them in the LL environment towards the innovation. This also must be considered that in most cases LL are being created by or in close cooperation with public organizations seeking to achieve higher involvement of a wide range of stakeholders. In this respect, co-creation as the approach for bringing together different expertise has become more widely presented in political and public management research agendas for about the decade (De Filippi F. et al, 2017; Kleinhans R., 2017), i.e. approximately the same period as the LL concept has emerged.

Although co-creation was always there, the first attempts to define the concept were in the 1970s, as a new form of social interaction to delivery public services with a high degree of citizen involvement (Alford J., 2009, Parks R.B. et al, 1981). The primary focus of scholars was on how to increase the efficiency of governments, especially at the U.S. local level (Brudney J.L., 1983; Parks R.B. et al, 1981). These studies defined co-creation as a *"mixing of the productive efforts of regular and consumer coproducers (…) that occurs as a result of technological, economic and institutional influences"*. Incorporating Alford's (1998) definition, the role of regular and consumer producers would be performed by the service professionals and citizens, respectively. The interest in co-creation decreased in the mid-1980s because of the rise in marketization of public services activities (Alford J., 1998). A decade later, incorporating insights from Alford (2009) and Osborne (Osborne S.P. et al, 2013) built further the co-creation definition. They focused on adding new co-producer inputs (time, efforts, labor) and a variety of new actors to be involved in public initiatives (Alford J., 1993; Ostrom E., 1966). This includes both client co-producers and volunteers in the public services' co-creation (Alford J., 1998; Alford J., 2002).

A renewed interest in co-creation (Brandsen T. et al, 2012; Osborne S.P. et al, 2013; Pestoff V., 2012) has come about the increasing budgetary constraints carried out by governments in the aftermath of the financial crisis (Van Eijk C.J.A. et al, 2014). In this new stage, the interest is more focused on the factors related to co-creation such as the drivers and characteristics of co-producers (Bovaird T., 2016; Parrado S., 2013) in the provision of public services: self-efficacy, satisfaction, demographic characteristics and so on. Also, there is a research interest in understanding stakeholders' roles, as something that brings different forms of expertise together (Osborne S.P. et al, 2013).

Most empirical and theoretical studies consider a prospect based on influential factors of co-creation (Osborne S.P. et al, 2016; Uppström E. et al, 2017). Also, most studies on co-creation are focused on citizens as a co-implementer, while only a few identify the role of citizens as a co-designer (Voorberg W.H., 2015). Also, little is known on the obstacles related to the engagement process (Mergel I., 2018; Uppström E. et al, 2017).

The Living Lab approach brings the stakeholders' engagement through the co-creation approach closer to reality. For example, the ENoLL[4] on its platform offers three toolboxes of methodologies, co-creation tools methods for LL co-creation journeys, engaging end users, scale-up and scale out results of projects and encourage creatives and policy makers to step forward and build their capacity to innovate across a wide range of territories and thematic areas. In addition, the application of such tools and methods help focusing on better understanding and prioritization of the

[4] https://enoll.org/toolkits/

particularities of each context. The ENoLL platform also offers two sets of Tips & Tricks cards which provide pathways for creative thinking while carrying out responsible research and innovation work. Therefore, there is a wide range of tools and methods that can be used for LL operation, including online, ICT, onsite and hybrid versions.

The Distance LAB project is devoted to promoting the use of online services that also include online working in the LL environment. Therefore, the IMNLL toolbox will mainly include online and ICT co-creation tools and methods that can be applied for LL. Considering that in most cases the Distance LAB partners' Living Labs are started from the beginning, it is important to go through the process of LL development following a particular methodology. For this purpose, the Distance LAB LL methodology has been designed following a step by 8 step method from in-depth case studies in practice according to Steen & Bueren, (2017), which involves preparation; initiation; plan development; co-creative design; implementation; evaluation; refinement; dissemination and replication.(see Figure 3) Based on this methodology, the Distance LAB toolkit comprises online and ICT co-creation methods and tools which are selected according to the 8 above mentioned steps.

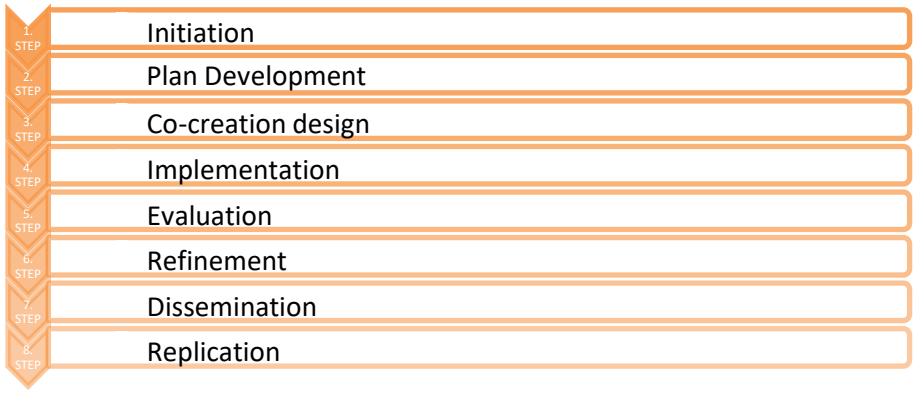

Figure 3. Living Labs development phases or steps
Source: Steen & Bueren, (2017)

Nowadays, there is a huge number of examples of Living Labs. The research reveals that the following examples could be relevant for objectives of Distance LAB project:

– **Limerick's Citizen Innovation Lab**[5] (Ireland) using digital tools to create a citizen-sourced open-data portal to promote local policy and regulatory change.

[5] https://www.limerick.ie/discover/explore/areas-limerick/georgian-neighbourhood-limerick/citizen-innovation-lab

– **EIT Health**[6] has launched a program of user validation labs (ULabs), where different actors of the innovation ecosystem support innovator start-ups to test their solution with final users (patients, clinicians and medical staff).

– **Helsinki Living Labs**[7] was launched in 2007 to act as a connector between companies and the public sector interested in collaborating with living labs. The organization facilitates activities in Helsinki and surrounding cities, encompassing eight living labs, together with associated organizations of developers, enablers, and utilizers.

– **Happy Aging**[8] is an integrated network and living lab in Belgium for user centered innovation in elderly care, which offers a real-life environment for companies and healthcare organizations to develop innovative concepts for elderly care.

– **The Living Lab for the Internet of Things (IoT), Italy**[9] living lab focuses on development of Integrated sensor and communication systems to connect plants and exchange data between machinery and ma- chine operators. It provides a platform for companies and researchers to collaborate on IoT projects.

– **Copenhagen Solutions Lab, Denmark**[10] living lab supports the development of the city through testing and implementation of intelligent and data-driven solutions, that support the needs of the city and its citizens. The activities in this living lab can be categorized within 4 themes - People and Flows, environment and climate, air quality, and smart city networks.

– **Laurea Living Labs, Finland**[11] living labs focuses on providing multidisciplinary approach to ideas and needs in service innovation, user-centric design, international collaboration, learning environment, smart specialization.

The challenge of the Distance LAB project is ensuring an online setting for LL cooperation and networking. Nowadays, the ICT & Infrastructure outlines the role that ICT technology can play to facilitate new ways of cooperating and co-creating new innovations among stakeholders. Therefore, the most convenient and efficient tool(s) to be used for LL and IMLNN must be identified. One of such tools could be the Ecosystem canvas model: Free Online Ecomap Maker and Examples | Canva.

This model allows effortlessly to create a visual depiction of the social and environmental influences impacting an individual's life with our complimentary ecomap generator. The extensive media library incorporates visual elements that illustrate the connections and dynamics influenced by family, society, and community. Online collaboration, employing free

[6] https://eithealth.eu/news-article/eit-health-living-labs-and-test-beds-programme/
[7] https://rural-urban.eu/living-lab/helsinki
[8] https://www.in4care.be/getitdone
[9] https://www.ip4fvg.it/en/living-lab-iot-internet-of-things/#
[10] https://cphsolutionslab.dk/
[11] https://www.laurea.fi/en/research/laurea-living-labs/

templates and a range of tools and features on Canva Whiteboards allows them to craft and share ecomaps effectively.

Another identified tool is the Ecosystem Mapping Template | Miro, which enables users to see their organization's customer's perspective. In addition, the Ecosystem Mapping Template also includes internal players and stakeholders, giving users the full picture of their customer experience in and out of the organization. Ecosystem Mapping allows us to understand the organization better, focusing on the customer's point of view.[12]

It is planned that the local co-creation LL will offer networking, expert and peer-to-peer support in the changing business environment. This will require spending more time in virtual meeting rooms to help remote businesses to understand services and support them. At the same time, this is quite evident, especially after the Covid-19 pandemics that a need for remote services will only continue growing. Transferring local co-creation LL ser- vice production models to the hub will facilitate the creation of IMLLN to ensure transnational and international networking and collaboration. This will include extending links and cooperation networks to existing local and global clusters, networks, incubators, DIHs and centers of innovation and excellence.

4. Distance LAB Living Labs of Innovation

From 8 LL initially proposed seven Distance LAB project partners' Living Labs were in the development in the middle of 2024 to become operational and join into IMNLL in the middle of 2025. (see Table 2)

Table 2. Distance LAB project partners' Living Labs, 2024

No	Title of Living Lab	Owner of Living Lab
1	Centria Makerspace (Finland)	Centria University of Applied Sciences
2	"Where to go" Living LAB (Finland)	LAB University of Applied Sciences
3	Living Lab of Entrepreneurship (Poland)	Rzesow Regional Development Agency
4	Circular Business Lab (Sweden)	IUC Norr
5	Innovation Bridge Lab (Lithuania)	Lithuanian Innovation Center
6	Sustainable Digital Futures (Lithuania)	Kaunas Science and Technology Park
7	Citizen's lab in Kristiansund (Norway)	More and Romsdal County Council

Source: Distance LAB project

[12] https://miro.com/templates/ecosystem-mapping/

In August 2024, there was a survey conducted among the Distance LAB partners – developers of Living Labs launched to find out more about the status of partners' Living Labs development, ongoing activities and expectations from the IMNLL. According to answers most partners or 87.5% are in the process of developing their LL, while 12.5% are planning to set up LL soon. Considering the stage of LL development according to the project method- ology following a step by 8 step method according to Steen & Bueren (2017), most LL or 46.15% are in the Initiation phase, 30.77% are in the Plan development phase, while others are in the phases of Co-creative design, Implementation and Dissemination. (see Figure 4) These findings provide evidence on the different statuses of partners LL. While five of the seven LL are still in very early stages of development, the other three are already well a d vanced. One of the LL is fully established considering that it is in the Dissemination stage.

Considering those stages of development of Distance LAB partners' LL, they are also performing different activities depending on their cur- rent status. The survey provides evidence that 55.56% of partners are already actively using the LL approach or co-creation methods engaging local stakeholders, testing Distance LAB services pilots and other activities. Other partners are either planning to test their services pilots on a later stage of the LL development or they had too little opportunities to use the LL approach or co-creation methods in their services or tool testing.

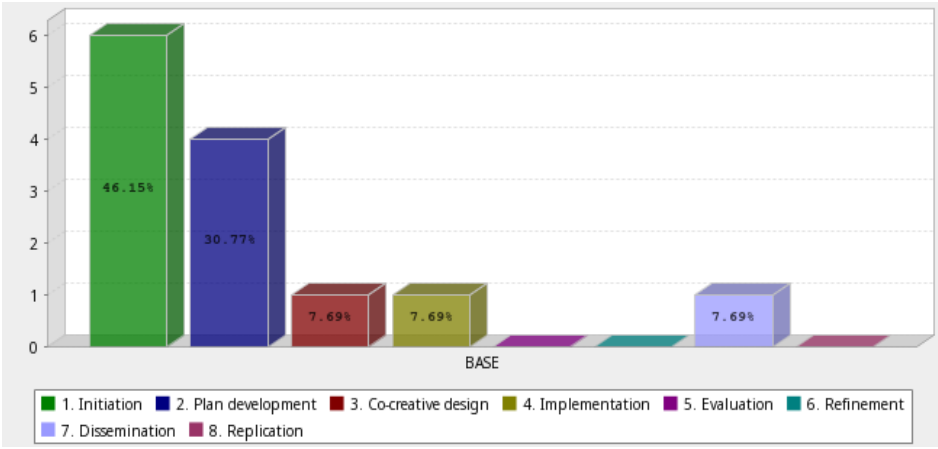

Figure 4. Status of the Distance LAB project Living Labs development, 2024, %
Source: Distance LAB project

According to Distance LAB project partners' the most important factors which are required for LL success are stakeholders that are interested in participating (29.63%), clear objectives and tasks to deal with (22.22%),more information and exchange with other LL (18.52%), resources – human, financial (14.81%), more knowledge and training (11.11%) and more tools and instruments to work with LL (3.70%) (see Figure 5).

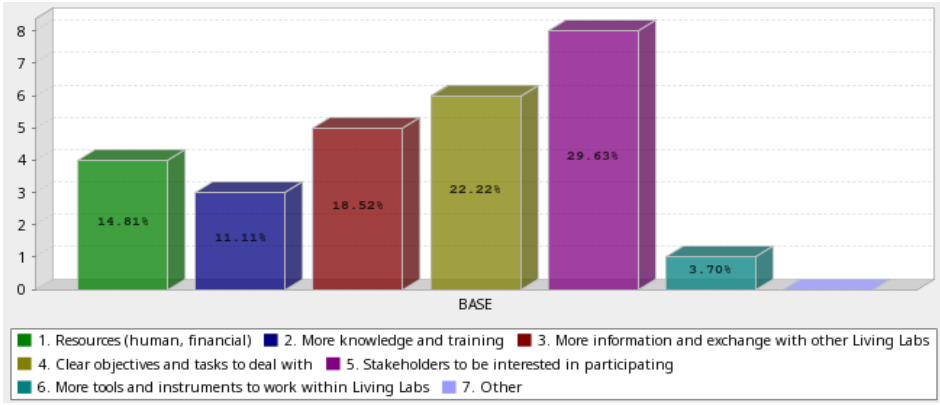

Figure 5. The most important factors for Living Labs success, %
Source: Distance LAB project

In respondents' opinion, the most important principle of the LL unanimously is the value co-creation for all stakeholders (100%) followed by the early stakeholders' engagement (75%); real life experimentation and testing (37.50%); iterative processes for inclusive feedback (37.50%);

openness and transparency (25%); ethics and responsibility (12.50%) and distributed decision-making power (12.50%) (see Figure 6).

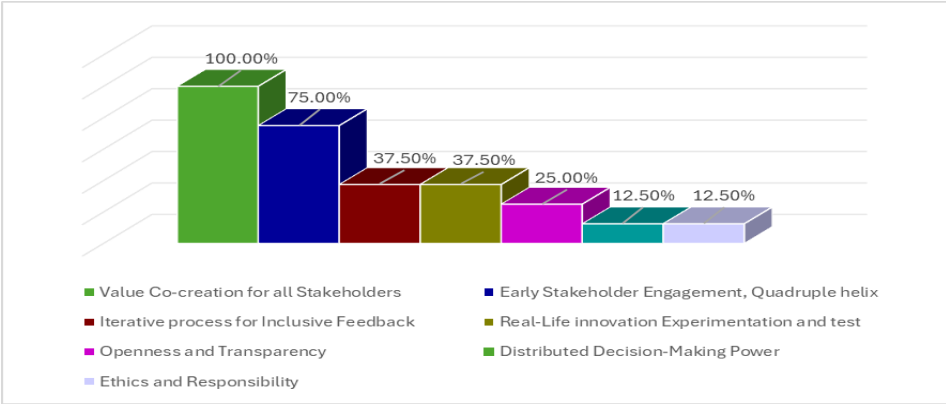

Figure 6. The most important principles of Living Labs*
* Percentage of survey participants voting for principle as the top 3 most important.
Source: Distance LAB project

The most important components for Living Labs in the opinion of most partners are methods and tools (87.50%); Living Lab context (75%); Quadruple Helix actors (62.50%); innovation (37.50%); ICT and infrastructure (12.50%); financing and business models (12.50%) and management structure (12.50%) (see Figure 7).

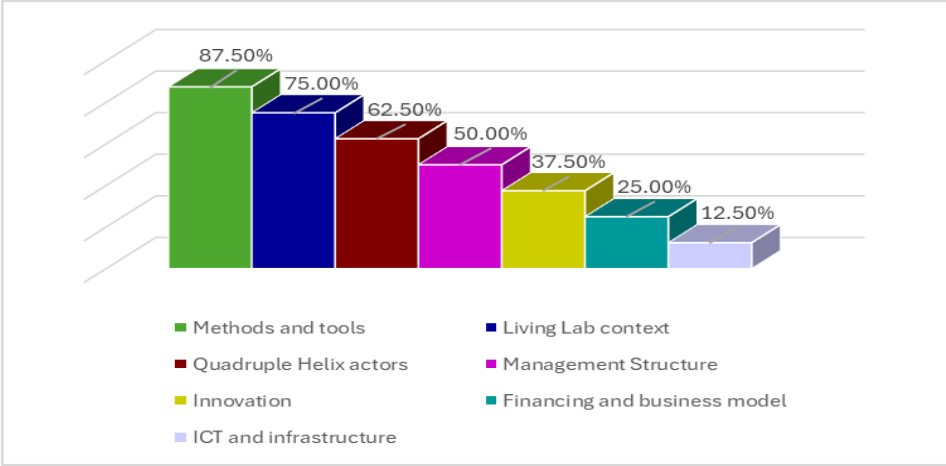

Figure 7. The most important components of Living Labs of innovation*
* Percentage of survey participants voting for principle as the top 3 most important.
Source: Distance LAB project.

Considering the possibility of running LL in online settings, half of the participants (50%) would agree to it if also all other participants agree to have such an approach. This means that before taking such a decision, partners would have to discuss this with their stakeholders. The other half would consider a hybrid approach as more desirable in the case of 37.50% respondents or would agree to move to online settings if the LL leader/team is skillful enough (12.50%) (see Figure 8).

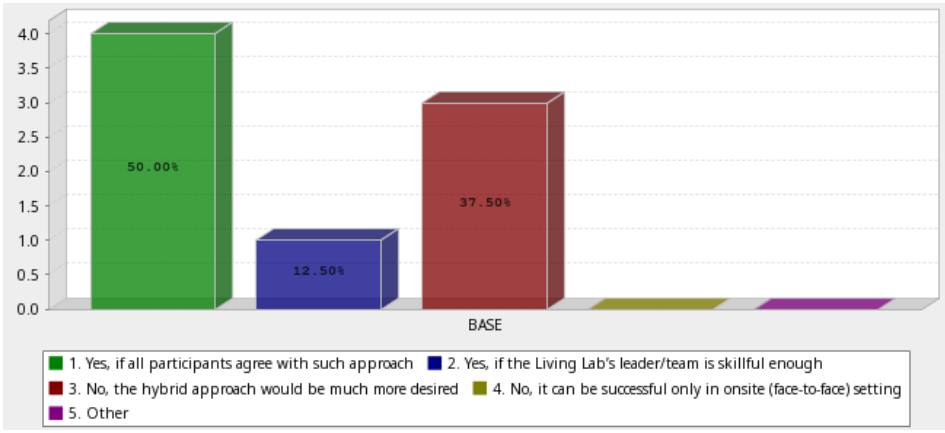

Figure 8. Possibility to operate a Living Lab in the online setting
Source: Distance LAB project

Most partners or 75% hope to join the IMNLL with their Living Labs in the middle of 2025, while other 25% are not sure and can't evaluate it at this moment. The most important expectations from being a part of the IMNLL are related to having the information and toolkit for developing and running LL (87.50%); strategic partnerships with other Living Labs in partners' countries and/or outside the Distance LAB project network and individual partners (62.50%); possibility to network, exchange and share knowledge and information with other LL (62.50%); possibility to use the IMNLL as a platform to run own virtual LL (37.50%); possibility to participate in working groups or sections on relevant topics (25%) and a possibility to organize matchmaking sessions (25%) (see Figure 9).

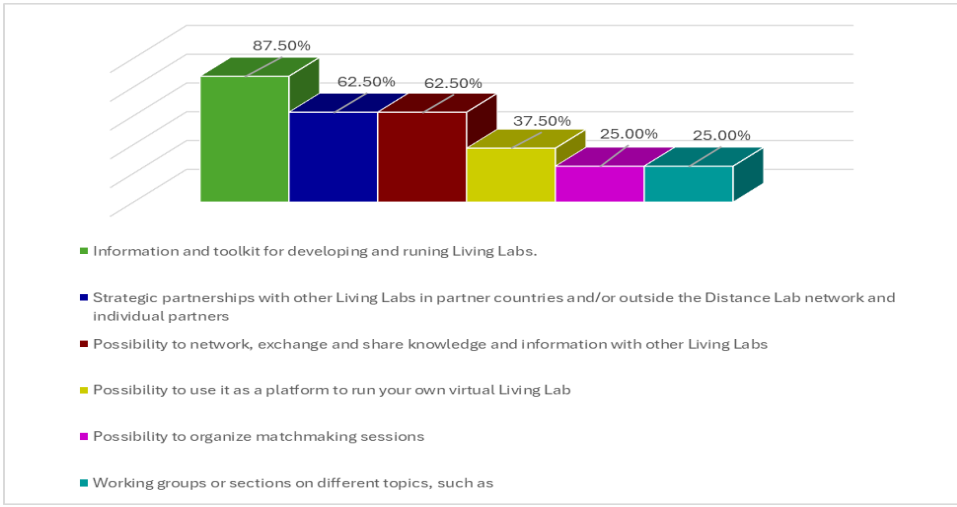

Figure 9. Important features expected from the IMNLL by Distance LAB partners*

* Percentage of survey participants voting for activities and opportunities as the top 3 most important.

Source: Distance LAB project

Additionally, the Distance LAB project partners emphasize their interest in networking through LL and bring value to their stakeholders, as well as exchange with other LL after the end of the project, which is very important for sustainability. Partners are seriously working on their LL to have a sound foundation and are

Overall, the survey reflects the interest and dedication of the Distance LAB project partners to create local LL and to join with them the IMNLL. In most cases the LL development process is well under way and work with stakeholders is ongoing. The evidence from the Distance LAB project confirms findings of the literature analysis that relevant stakeholders are the most important part of LL, and their early engagement is instrumental for the success of LL. The survey also confirms that this should be possible to operate LL in the online settings if all parts, especially stakeholders agree to it and if the LL team is skillful enough to do this.

The Distance LAB project will provide project partners with the IMNLL platform, as well as tools and methods for running Living Labs online. Other important features to be made available on the IMNLL platform will also be considered and will depend on technical features of the platform.

5. Conclusions

The Living Lab has gained recognition over the past decade and is becoming increasingly popular as a collaborative innovation structure. The

most noted key features of the LL in scientific literature are open innovation ecosystems, collaboration with stakeholders, knowledge sharing, co-creation, real-life environments, experimentation, public-private partnerships (4Ps), prototyping, validating, testing. The LL concept also involves several advantages and disadvantages which should be considered by those developing Living Labs.

Stakeholders are instrumental part of Living Labs and the involvement of experienced stakeholders with appropriate mindset from the very beginning is the basis for success of activating and running the LL. The selection of stakeholders very much depends on the nature of LL and its expected activities. However, one of the most common approaches for organizing a group of stakeholders with complementary knowledge and experience is the Quadruple Helix Model, which is the most used organizational set-up for ecosystem collaboration and often used for business clusters.

The co-creation as the approach for bringing together various expertise has become more widely presented for about a decade ago which is about the same time, when the LL concept has emerged. The LL brings the stakeholders' engagement through the co-creation approach closer to reality. There are many co-creation methods offered which can be successfully used by LL online, onsite or hybrid settings for LL co-creation journeys, engaging end users, scale-up results of projects and encouraging creatives and policy makers to step forward and build their capacity to innovate across territories and thematic areas.

The crisis caused by the Covid-19 pandemics dramatically increased the **importance of remote work and services, and these trends will only continue gr**owing. Transferring local co-creation LL service production models to the online hub will facilitate business development through international networking and collaboration. In this respect, extending links and cooperation networks to existing local and global clusters, networks, incubators, DIHs and centers of innovation and excellence must also be considered.

In the case of the Distance LAB project, the LL of its partners are well under way and work with stakeholders is ongoing. The survey results visibly recognize the importance of early stakeholder engagement and confirm that this should be possible to operate LL in the online settings if all parties, especially stakeholders, agree to it and if the LL teams are skillful enough to do this.

List of literature and sources

Alford, J. (1993). Towards a new public management model: beyond" managerialism" and its critics. *Australian journal of public administration*, *52*(2), 135-148.

Alford, J. (1998). A public management road less travelled: Clients as co-producers of public services. *Australian journal of public administration*, *57*(4), 128-137.

Alford, J. (2002). Why do public-sector clients coproduce? Toward a contingency theory. *Administration & Society*, *34*(1), 32-56.

Alford J. (2009). *Engaging public sector clients: From service-delivery to co-production*. Palgrave Macmillan London, 15-29.

Almirall, E., Lee, M., & Wareham, J. (2012). Mapping living labs in the landscape of innovation methodologies. *Technology Innovation Management Review*, *2*(9), 12–18.

Ballon, P., & Schuurman, D. (2015). Living labs: concepts, tools and cases. *info*, *17*(4). http://dx.doi.org/10.1108/info-04-2015-0024

Brandsen, T., Pestoff, V., & Verschuere, B. (2013). Co-production as a maturing concept. In *New public governance, the third sector, and co-production* (pp. 1-10). Routledge.

Brudney, J. L., & England, R. E. (1983). Toward a definition of the coproduction concept. *Pub- lic Administration Review*, p. 59–65.

Bovaird, T., Stoker, G., Jones, T., Loeffler, E., & Pinilla Roncancio, M. (2016). Activating collective co-production of public services: influencing citizens to participate in complex governance mechanisms in the UK. *International Review of Administrative Sciences*, *82*(1), 47-68.

Buhl, J., von Geibler, J., Echternacht, L., & Linder, M. (2017). Rebound effects in Living Labs: Opportunities for monitoring and mitigating re-spending and time use effects in user integrated innovation design. *Journal of Cleaner Production*, 151, 592-602.

European Commission (2003). Commission Staff Working Document: Regulatory learning in the EU. Guidance on regulatory sandboxes, testbeds, and living labs in the EU, with a focus section on energy. Brussels 29.8.2023 SWD (2023) 277/2 Final

De Filippi, F., Coscia, C., & Cocina, G. (2017). Collaborative platforms for social innovation projects. The Miramap case in Turin. *TECHNE-Journal of Technology for Architecture and Environment*, 218-225.

Hossain, M., Leminen, S., & Westerlund, M. (2019). A systematic review of living lab literature. *Journal of Cleaner Production*, 213, 976-988. https://doi.org/10.2139/ssrn.3307055

Katzy, B. R. (2012). Designing viable business models for living labs. *Technology Innovation Management Review*, 2(9), 19–24. https://doi.org/10.22215/timreview/604

Leminen, S. (2013). Coordination and Participation in Living Lab Networks. *Technology In- novation Management Review*, *3*(11), 5–14. http://timreview.ca/article/740

Leminen, S., Niitamo, V. P. & Westerlund, M. (2017). A Brief History of Living labs: From Scattered Initiatives to Global Movement. *Proceedings of the Open Living Labs Research Day, August 29–September 1, 2017, Krakow, Poland*, 42-58.

Leminen, S., Westerlund, M., & Nyström, A.-G. (2012). Living Labs as open-innovation networks. *Technology Innovation Management Review*, *2*(9), 6–11. https://doi.org/10.22215/timreview/602

lmirall, E., Lee, M., & Wareham, J. (2012). Mapping Living Labs in the landscape of innovation methodologies. *Technology Innovation Management Review*, *2*(9), 12–18. https://doi.org/10.22215/timreview/603

Kleinhans, R. (2017). False promises of co-production in neighborhood regeneration: the case of Dutch community enterprises. *Public Management Review*, *19*(10), 1500- 1518.

Mergel, I. (2018). Open innovation in the public sector: drivers and barriers for the adoption of Challenge.gov. *Public Management Review, 20*(5), 726–745.

Nesti, G. (2017). Living Labs: a new tool for co-production? In: Bisello, A. *Smart and Sustain- able Planning for Cities and Regions*. Springer: Cham

Nyström, A. G., Leminen, S., Westerlund, M., & Kortelainen, M. (2014). Actor roles and role patterns influencing innovation in living labs. *Industrial Marketing Management*, *43*(3), 483-495.

Osborne, S. P., Radnor, Z., & Strokosch, K. (2016). Co-production and the co-creation of value in public services: a suitable case for treatment? *Public Management Review*, *18*(5), 639-653.

Osborne, S. P., & Strokosch, K. (2013). It takes Two to Tango? Understanding the Co-production of public services by integrating the services management and public administration perspectives. *British Journal of Management*, 24, S31-S47.

Ostrom E. (1996). Crossing the great divide: Co-creation, synergy, and development, *World Development*, 24(6), 1073–1087.

Parks R.B., Baker P.C., Kiser R., Oakerson R., Ostrom E., Ostrom V., Percy S.L., Vandivort M.B., Whitaker G.P., Wilson R. (1981). Consumers as Coproducers of Public Services: Some Economic and Institutional Considerations, *Rick Policy Studies Journal*, *9*(7), 1001– 1011.

Parrado, S., Van Ryzin, G. G., Bovaird, T., & Löffler, E. (2013). Correlates of co-production: Ev- idence from a five-nation survey of citizens. *International Public Management Journal*, *16*(1), 85-112.

Paskaleva, K.; Cooper, I. (2017). Co-production and governance for smart city services: learning from practice. Editorial, *International Journal of Services, Technology and Management, Special issue on Smart City and Service Innovation*, *23*(5/6), 1-12.

Paskaleva, K.; Cooper, I. (2015). Smart city stakeholder engagement: making Living Labs work. In: Bolívar, M. *Transforming City Governments for Successful Smart Cities*. Springer: Cham

Paskaleva, K., & Cooper, I. (2021). Are living labs effective? Exploring the evidence. *Technovation*, 106, 102311. https://doi.org/10.1016/j.technovation.2021.102311

Pestoff, V. (2012). Co-production and Third Sector Social Services in Europe: Some Concepts and Evidence. *Voluntas International Journal of Voluntary & Nonprofit Organizations, 23*(4), 1102-1118.

Purcell, W. M., Henriksen, H. A., & Spengler, J. D. (2018). Universities as the Engine of Transformational Sustainability in Delivering against the Sustainable Development Goals: Living Labs for Sustainability. https://doi.org/10.20944/preprints201810.0665.v1

Schuurman, D., & Tõnurist, P. (2017). Innovation in the public sector: Exploring the characteristics and potential of Living Labs and Innovation Labs. *Technology Innovation Management Review*, *7*(1), 7–14. https://doi.org/10.22215/timreview/1045

Schuurman, D., Herregodts, A.-L., Georges, A., & Rits, O. (2019). Innovation management in Living Lab Projects: The innovatrix framework. *Technology Innovation Management Review*, 9 (3), p. 63–73. https://doi.org/10.22215/timreview/1225

Steen, K., & Bueren, E. van. (2017). *Urban Living Labs: A living lab way of working*. AMS Institute. https://www.ams-institute.org/news/urban-living-labs-living-lab-way-working/

Uppström, E., & Lönn, C. M. (2017). Explaining value co-creation and co-destruction in e- government using boundary object theory. *Government Information Quarterly, 34*(3), 406-420.

Van Eijk, C. J., & Steen, T. P. (2014). Why people co-produce: Analysing citizens' perceptions on co-planning engagement in health care services. *Public Management Review, 16*(3), 358-382.

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) December 2013, 6-15.

Von Wirth, T., Fuenfschilling, L., Frantzeskaki, N., & Coenen, L. (2018). Impacts of urban living labs on sustainability transitions: Mechanisms and strategies for systemic change

through experimentation. *European Planning Studies*, *27*(2), 229–257. https://doi.org/10.1080/09654313.2018.1504895

Voorberg, W. H., Bekkers, V. J., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review*, *17*(9), 1333-1357.

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. https://doi.org/10.1016/j.jclepro.2015.08.053

Internet resources:

https://enoll.org/ https://servicedesigntoolkit.org

https://www.limerick.ie/discover/explore/areas-limerick/georgian-neighbourhood-limer- ick/citizen-innovation-lab

https://eithealth.eu/news-article/eit-health-living-labs-and-test-beds-programme/ https://rural-urban.eu/living-lab/helsinki

https://www.in4care.be/getitdone https://www.ip4fvg.it/en/living-lab-iot-internet-of-things/# https://cphsolutionslab.dk/ https://www.laurea.fi/en/research/laurea-living-labs/

https://grrip.eu/why-is-quadruple-helix-engagement-so-important/ https://www.canva.com/graphs/ecomap/ https://miro.com/templates/ecosystem-mapping/

https://www.hofstede-insights.com/country-comparison-tool?countries=finland%2Clat- via%2Cnorway%2Csweden

Acknowledgements

This paper reflects on the results of the Distance LAB (Developing Remote Skills & Services) project of the Interreg Baltic Sea Region 2021-2027 Programme and is supported by the Distance LAB project #C006.