

Living Lab origins, developments, and future perspectives

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About this publication

This booklet provides a comprehensive As introduction to the origins, evolution, and their respective environments, Living future outlook of the Living Lab movement. It Labs are inherently shaped by their has been created to guide readers through unique surroundings and networks of the development of Living Labs over the stakeholders. This connection makes years and highlight the path ahead. While them responsive to change and, in many earlier publications, such as the "ENoLL & Its Community" booklet from 2014, covered certain aspects of Living Labs, this publication is the first to focus solely on the full trajectory of Labs play an active role in shaping the the movement-from its roots to the dynamic, course of innovation, amplifying their expanding ecosystem it represents today.

In recent years, the ENoLL Members This booklet is envisioned as a living Catalogue has focused on showcasing the community aspect of Living Labs, but there Lab movement. Developed from existing has been no single, consolidated publication devoted to exploring the historical background and future ambitions of this evergrowing movement. Over the past decade, both Living Lab research and practice have thrived. Certain foundational principles have converged, creating a shared framework for the movement, while other aspects, such as specific application domains, have diversified, demonstrating the adaptability of Living Labs aligned with the latest advancements in to a wide range of challenges and contexts.

deeply rooted entities within instances, powerful drivers of positive transformation. By fostering more sustainable and desirable futures, Living impact and societal relevance.

document, evolving in step with the Living research, documentation, and practical experiences, it provides a reflection on the history and policies that have supported Living Labs, a snapshot of the current landscape, and a forward-looking perspective on emerging opportunities and challenges. Regular updates and contributions are planned to ensure that this publication remains relevant and the Living Lab community.

As part of ENoLL's communication materials, this booklet is intended for a broad audience. It aims to be a valuable resource for professionals, institutions, and individuals with an interest in open and user-centred innovation, innovation management, policy development, and social and territorial innovation. Whether the reader is a researcher, policy-maker, business leader, or simply someone with a passion for innovative solutions, this booklet is designed to inform, inspire, and offer guidance on the transformative impact of Living Labs.

A Message to Our **Readers**



Wim de Kinderen Chairperson ENoLL

European Network of Living Labs, will know relevance of the work by all. The association the year 2006 marks an important moment is also a safe environment for all to grow in time, as it is the founding year of our steadily within, or to jump on in any stage association. More than a starting moment, of maturity you are in as an entity and from ENoLL's birth date is more a marker point any core interest you have or represent. As a which captured an existing and growing global innovation movement that can be which has been growing steadily within, I traced back in time, as this publication clearly describes. The core goal of Living Labs, i.e. get in touch and inspire. advancing user-driven innovation in real-life context, has been gaining momentum over the years and it continues to do so. Indeed, the time for Living Labs lasts to be right, as it is ever more widely acknowledged and proven that the integration of all guadruple helix's perspectives adds value in every meaning of the term.

Thanks to the growth of our association and its strengthened capacities, ENoLL has been able to serve ever better the broad Living Labs community - both within as outside of the network's membership - and to act as an accelerator to Living Labs research

Readers already familiar with ENoLL, the and practice, thereby enhancing impact and proud president, representing an organisation invite all to (continue to) grow and explore, to

> This booklet captures the work so far. I am confident Living Labs will continue to be drivers of positive transformation, taking on new challenges which will present themselves in an agile and responsive way. I am eager to look to follow-up editions of this publication, in which your contribution will undoubtedly be reflected as well.

A Message to Our **Readers**



Martina Desole Director FNoL

remarkable journey of innovation, collaboration, and societal impact. Over the years, it has evolved from an emergent concept into a thriving ecosystem—one that empowers diverse stakeholders to co-create solutions tailored to real-world challenges. This booklet As Living Labs look to the future, their potential takes us on a comprehensive exploration of that journey, tracing the roots of Living Labs, celebrating their accomplishments, and envisioning their role in addressing the complexities of our shared future.

As Director of the European Network of Living Labs (ENoLL), I have had the privilege to witness first-hand the profound contributions of Living Labs in fostering user-centric and participatory innovation. Living Labs thrive at the intersection of research, policy, and practice. They are not only spaces for experimentation but also catalysts for systemic transformation. Their strength lies in their adaptability-responding to the unique challenges and opportunities of their respective environments while adhering to shared principles that define the movement.

This experiences and aspirations of the Living Lab community. It serves as both a testament to the progress achieved and a guide for navigating the path ahead.

Our intention is for this publication to remain dynamic, just like the movement it represents. We envision it as a 'living document' that will grow and evolve through regular updates and

The Living Lab movement represents a contributions from practitioners, researchers, and other stakeholders. By doing so, we aim to ensure that it continues to inspire and inform, remaining relevant to the ever-changing innovation landscape.

> to address global challenges has never been greater. Whether it is fostering resilience in our cities, advancing inclusive technologies, or supporting the green and digital transitions, the Living Lab methodology offers a framework for creating meaningful and impactful solutions. This publication is an invitation to engage with this transformative movement-to learn, to share, and to contribute.

> I extend my deepest gratitude to all those who have contributed to this booklet, as well as to the wider ENoLL community. Your dedication and vision drive the Living Lab movement forward, ensuring its continued relevance and societal impact.

I hope that this booklet serves as a source of knowledge and inspiration for all readers, booklet reflects the collective whether you are new to the concept of Living Labs or a long-standing member of our community. Together, let us continue to shape a future that is sustainable, inclusive, and innovative.

Clim Down

General Assembly December 2024

Andorra	France	Poland	Turkey
Australia	Germany	Portugal	United Kingdom
Austria	Greece	Republic of Korea	Bulgaria
Belgium	Hong Kong	Romania	India
Bosnia and Herzegovina	Hungary	Russia	Germany
Bulgaria	Ireland	Serbia	Greece
Canada	Israel	Slovenia	Poland
China	Italy	Spain	Switzerland
Colombia	Mauritius	Sweden	Kenya
Croatia	Montenegro	Switzerland	Tunisia
Denmark	Netherlands	Taiwan	Spain
inland	Norway	Tunisia	Δustralia



About the European Network of Living Labs (ENoLL) The European Network of Living Labs (ENoLL) is an international non-profit association headquartered in Brussels, Belgium, dedicated to advancing user-driven innovation ecosystems through the Living Lab approach. Established in 2006, ENoLL has grown into the only certification body and world's largest Living Lab network, bringing together over 480 historically recognised Living Labs to foster collaboration, experimentation, and co-creation that drive societal and economic impact.

ENOLL facilitates knowledge exchange, supports joint initiatives, and promotes project partnerships among its members while advocating for the adoption of Living Lab methodologies globally. Through its work, ENOLL influences public policy at both European and international levels, enabling the creation of innovative solutions that address societal challenges.

Living Labs are innovation environments where citizens, public authorities, private enterprises, and research institutions collaborate (Quadruple Helix model) to co-design, test, and validate new products, services, and systems. ENoLL empowers its members to apply this approach across diverse domains, such as health and wellbeing, soil-health, energy, mobility, agriculture, culture and creativity, social innovation, among others, fostering experimentation and the development of new business models.

With over 170 members spanning Europe and beyond—20% of whom are based outside the European Union (EU)—ENoLL represents a vibrant, global ecosystem of change makers dedicated to advancing innovation through collaborative, user-centred practices.

Supporting and Expanding the Living Lab Community

ENoLL provides its members with a comprehensive range of benefits, including:

Capacity Building: A robust training programme designed to enhance Living Lab expertise through various formats, including the online *ENoLL Living Labbers Academy*¹. The bespoke training opportunities include the *Virtual Learning Lab* online course, the *Learning Lab – Day 0* crash course, the *Dive Sessions* immersive approach and *Tailored Trainings* designed to enhance Living Lab expertise.

Networking Opportunities: ENoLL offers a wide range of networking activities to connect with like-minded professionals, form partnerships, and enhance collaboration within the Living Lab community. Members have the opportunity to participate in thematic Working Groups, brokerage events, the yearly conference *OpenLivingLab Days*², thematic symposia, info days, and other networking events. These platforms foster knowledge exchange, peer debate, and open innovation, providing continuous opportunities for members to expand their connections, engage in collaborative research, and actively contribute to shaping the future of Living Labs.

Visibility and Recognition: ENoLL members benefit from exclusive opportunities to showcase their Living Labs at high-profile events and conferences, including EU working groups, thematic symposia, and other key gatherings. ENoLL actively promotes its certified members, advocating for their work and contributions within the wider Living Lab

community. As part of its role as a network enabler, ENoLL ensures that members are well-represented in the projects and events the network participates in.

Funding and Projects: ENoLL actively supports its members in accessing funding opportunities and participating in European and International-funded projects. The network promotes open calls, fosters partnerships, and represents members at brokerage events, ensuring they are wellprepared to secure funding. Additionally, ENoLL itself participates in European projects alongside its members, promoting the Living Lab methodology and supporting initiatives that aim to adopt and apply this innovative approach. By facilitating collaboration and proposal-building activities, ENoLL empowers its members to maximise their involvement in impactful projects while expanding their global reach.

Policy Advocacy: ENoLL represents the Living Lab community in influential forums, shaping public policy at European and global levels. By advocating for user-driven innovation, ENoLL ensures the Living Lab approach remains at the forefront of policymaking and implementation.

Research: The ENoLL Research Unit focuses on fostering collaborative research within the Living Lab community. It aims to increase the number of Living Lab-related publications and define a comprehensive research agenda that spans various interdisciplinary topics. Through this unit, ENoLL Members and Living Lab researchers can participate in collaborative research projects, boosting their visibility and impact in both the academic and innovation fields.

¹ Learn more: https://academy.enoll.org/



² Find more information on OpenLivingLab Days, the global gathering of international Living Labs that brings together living labbers, public officials, corporate leaders, entrepreneurs, academics, and innovators from around the world: https://openlivinglabdays.com/

ENoLL Working Groups

ENoLL Working Groups³ are dynamic ENoLL Working Groups offer a platform for

collaborate on tackling pressing challenges practices, helping members increase



Joining the Network



What are Living Labs?



Living Labs are dynamic, open innovation cer ecosystems where innovation unfolds in reallife, operational environments. By using a systematic co-creation approach, they integrate research and innovation activities across communities, involving citizens and end-users Acc at the centre of the innovation process. This unique approach ensures that Living Labs not only generate groundbreaking ideas but also create solutions that are deeply rooted in realworld needs.

Living Labs are particularly well-suited for addressing "wicked problems"—complex and multifaceted challenges that are difficult to define, have no clear solution, and involve numerous stakeholders with conflicting of the inn interests. Examples of wicked problems include climate change, urbanisation, and social inequality, among others. These issues require collaborative and adaptive approaches, making the Living Lab methodology highly effective. Through their multi-stakeholder and user-

centred design, Living Labs offer a structured environment for tackling such challenges in a way that integrates diverse perspectives and adapts to evolving needs.

According to the ENoLL, Living Labs are defined as:

"user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings".

ENoLL's definition emphasises the importance of placing end-users at the core of the innovation process, not just as passive recipients but as active co-creators who shape the development of products, services, and policies. This user-centred focus ensures that innovations emerging from Living Labs are practical, relevant, and truly serve the needs of communities.

Living Labs are collaborative ecosystems that bring together a diverse array of stakeholders public authorities, private companies, academia, non-profits, and citizens—to foster a shared environment for learning, experimentation, and innovation. At their core, Living Labs follow a multi-stakeholder approach, which ensures that different perspectives and expertise collectively drive the innovation process. By involving endusers and communities in real-world settings, Living Labs can test new ideas and solutions within complex, authentic environments, resulting in innovations that are more practical, adaptable, and impactful.

The term *Living Lab* encompasses both the organisational structure that drives innovation based on these principles and the specific projects, activities, methods, and tools that operate within this framework. A distinction can therefore be made between a *Living Lab organisation*, which is an established entity promoting innovation within a particular

domain, and Living Lab projects, which focus on specific innovations or knowledge-building activities within that organisation and are time bounded. Additionally, Living Lab activities, methods, and tools refer to the various cocreation and engagement practices used within these projects to address specific challenges. Collectively, the term *Living Labs* represents the synergy of all three elements—organisation, project, and activity.

Initially, Living Labs were closely linked to the field of Information and Communication Technology (ICT) technology, particularly in large-scale applications. However, the concept has evolved and diversified significantly over time. Today, Living Labs exist in a wide variety of contexts and application domains, spanning sectors such as sustainability, healthcare, mobility, agroecology, and urban development. Despite these differences, six key characteristics define the Living Lab approach across all contexts, thematic domains, and objectives: Active User Involvement: Living Labs emphasise the active participation of endusers and stakeholders. By involving them in multiple stages, Living Labs ensure that their feedback and insights are incorporated throughout the innovation process, from idea generation to implementation.

European Network of Living Labs

Multi-Method Approach: Each Living Lab activity is problem-driven, selecting specific methods based on the desired outcomes and stakeholders involved. As a result, Living Lab projects utilise a variety of methods and innovation activities, ranging from exploratory to confirmatory approaches, depending on the nature of the problem and the needs of the participants.

6

Multi-Stakeholder Participation: Adopting a holistic approach, Living Labs engage a broad spectrum of stakeholders, typically following the Quadruple Helix Model: government, academia, private sector, and citizens or civil society. This diverse involvement enriches the innovation process, allowing for a balanced perspective and collaborative synergy.

Orchestration: Within each ecosystem, Living Labs serve as orchestrators, connecting various stakeholders and managing the innovation process. They facilitate collaboration, coordinate efforts, and ensure that the innovation activities align with shared objectives.

Co-Creation: Living Labs foster cocreation by bringing together all relevant stakeholders in the design and development process. This collaborative approach can be both bottom-up, initiated by the community, and top-down, driven by overarching objectives, ensuring that the outcomes align with the community's real needs.

Real life Setting: Unlike traditional laboratories, Living Labs operate in realworld environments. By conducting experiments and gathering feedback in everyday settings, they create solutions that are practical, relevant, and readily applicable in daily life.

The Structure of Living Labs: **A Three-Layered Model**

breaking down the Living Lab ecosystem diverse activities.

While these six characteristics define the into three interconnected levels: the macro, essence of Living Labs, putting them into meso, and micro levels. This model helps practice requires a clear structure. To this end, clarify the scope and focus of Living Labs, a three-lavered model has been developed³, enabling a deeper understanding of their



Macro Level (Living Lab Organisation):

At the macro level, we have the Living Lab a specific domain or geographic area. organisation itself-an established, stable ENoLL members represent this macro level, ecosystem designed to support long-term and the term Living Lab is used to describe innovation. This organisation typically includes various actors and stakeholders, collaborations, and initiatives at this level are working together to foster innovation within generally long-term and strategic.

these overarching organisations. The goals,



Meso Level (Living Lab Projects):

The meso level encompasses the specific Living Lab projects are adaptable and projects undertaken within the Living Lab organisation. These projects aim to develop challenges or opportunities within their and advance innovations or generate domain. Examples of these projects can be knowledge that supports further innovation. found in the websites of ENoLL members⁶.

problem-focused, addressing specific

Micro Level (Living Lab Activities and Methods):

The micro level refers to individual activities, research steps, and stakeholder interactions methodology by the Amsterdam Institute within Living Lab projects. This includes the various methods and tools-sometimes Living Lab Integrative Process developed called a "methodological toolbox"— by Energy Living Lab¹⁰ and the Bristol that Living Labs employ to achieve their Approach Framework by the Knowle West goals. Activities at this level might include Media Centre¹¹, among others. Additionally, workshops, experiments, focus groups, or specific activities and methods crafted by a other forms of user engagement. Some Living Living Lab are frequently offered as "Living Labs have developed their own tailored Lab services," providing an opportunity methodologies, such as Forming Future IT to expand the Living Lab's portfolio and (FormIT) by Botnia Living Lab⁷, Innovatrix broaden its impact¹².

by imec.livinglabs⁸, the Urban Living Lab for Advanced Metropolitan Solutions⁹, the

By organising these elements into macro, meso, and micro levels, the three-lavered model provides a structured way to understand and implement Living Lab practices. Each level contributes uniquely to the innovation ecosystem. fostering a collaborative environment that supports practical, impactful solutions tailored to the needs of real communities.

⁵ Schuurman, D. (2015). Bridging the gap between Open and User Innovation. exploring the value of Living Labs as a means to structure user contribution and manage distributed innovation. Ghent University. Faculty of Political and Social Sciences ; Vrije Universiteit Brussel. Faculty of Economic and Social Sciences, Ghent ; Brussels, Belgium. https://biblio.ugent.be/ publication/5931264

⁶ Find the updated list of ENoLL members: https://enoll.org/our-members/

⁷ Ståhlbröst, Anna. (2008). Forming Future IT : The Living Lab Way of User Involvement. Doctoral Dissertation, Luleå: Luleå University of Technology.

⁸ 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), 63-73. https://www.academia.edu/ download/108625363/TIMReview_March2019.pdf#page=63

⁹ Amsterdam Insitute for Advanced Metropolitan Solutions (2017). Urban Living Labs: a Living Lab way of working.

¹⁰ Mastelic, J. (2019). Stakeholders' engagement in the co-design of energy conservation interventions: The case of the Energy Living Lab. University of Lausanne. Doctorate Dissertation.

¹¹ KWMC. The Bristol Approach.

https://kwmc.org.uk/projects/bristolapproach/#:~:text=Rather%20than%20 'pushing'%20technology%20or,needed%20to%20tackle%20a%20problem.

¹² Read more: https://vitalise-project.eu/harmonisation-wiki/

Brief History of Living Labs: Research and Policy Context

The Living Labs movement in Europe has deep roots in the history of ICT innovation and user-centred approaches. This movement can trace its lineage back through three significant predecessors, each of which contributed unique perspectives and methodologies that have shaped modern Living Labs.

(1960s-70s)

The Scandinavian Cooperative and Participatory Design Movement (1960s–70s):

Originating in Scandinavia, this movement emphasised collaboration between researchers, designers, and end-users, particularly within workplace settings. Its focus was on participatory design, where users play an active role in the development of new technologies. This early emphasis on user involvement and cooperation laid a foundation for the participatory nature of Living Labs.

European Social Experiments with IT (1980s):

In the 1980s, European initiatives explored how IT could benefit society, leading to social experiments that integrated technology with community needs. These projects emphasised the societal value of IT beyond individual use, reinforcing the idea that technology should serve collective interests. This philosophy carried forward into Living Labs, which view communities as active agents in shaping innovation.

Digital City Projects (1990s)¹³:

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The Digital City initiatives in the 1990s focused on building network infrastructure and digital platforms that provided citizens with access to increasing amounts of digital information. These projects were transformative, establishing multi-stakeholder collaborations involving citizens, public organisations, and private businesses. Despite criticisms of being overly "technology push" and deterministic, these initiatives highlighted the potential of technology to enhance urban life, a theme that continues to resonate in Living Labs today.

 ³ For a more in-depth discussion, see https://backoffice. iblio.ugent.be/download/7023041/7023042
⁴ Read more: https://cordis.europa.eu/article/id/3414elecitiles-network-for-the-regeneration-of-urban-areas
⁵ Eriksson, Mats & Niitamo, VP & Kulkki, Seija & Hribernik, farl, (2006), Living Labs as a multi-contextual R&D nethodology. The 12th International Conference ldots. Several notable examples of these early digital city initiatives emerged in Europe, the USA, and Japan, with some founding members of ENoLL actively involved. In 1993, members of the Eurocities network collaborated to establish the first European urban telematics network, Telecities¹⁴, now known as the Eurocities Knowledge Society Forum (KSF). These digital city projects connected diverse stakeholders on a large scale, setting the stage for multi-stakeholder involvement that is central to Living Labs.

2000s)

The Birth of the Living Lab Concept¹⁵

The term Living Lab itself is attributed to Professor William ('Bill') Mitchell from the Massachusetts Institute of Technology (MIT). Professor Mitchell used the term Living Lab to describe a unique laboratory setting where volunteers would temporarily reside, allowing researchers to observe and record the daily routines and interactions of home life. These labs were designed as experimental environments to test and refine new technologies for home use, focusing on how well these innovations fit into everyday life, and are now known as Home Labs.

The Emergence of Living Labs in Europe

In the early 2000s, Living Labs and related user-driven innovation projects started appearing in Europe. Many cities that had initially founded the Telecities network, including Barcelona, Helsinki, and Manchester, were involved in pioneering projects. One such project was "InfoCities" (1996-1999), part of the TEN-Telecom initiative. This project was followed by "Intelligent Cities – Intelcities" (2002-2005)[™], a large-scale effort under the EU's Sixth Framework Programme (FP6).

Professor Mitchell served on the Expert Advisory Group for the Intelcities project, helping spread awareness of his work at MIT and introducing the Living Lab concept to a European audience. Upon the project's completion, the participating cities decided to establish a European network dedicated to knowledge exchange on Living Labs. This decision laid the groundwork for the formation of ENoLL, with Nokia's Veli-Pekka Niitamo emerging as one of the driving forces behind the Living Lab movement.

Official Launch of the European Network of Living Labs (ENoLL)

ENoLL was formally launched on November 20. 2006, during the Finnish Presidency of the EU. This launch represented a critical step towards creating a new European Innovation Ecosystem based on cocreation in public, private, and civic partnerships. The Living Labs approach was seen as an urgent measure to promote innovation for job creation and economic growth, aligning with the goals of the Lisbon Strategy¹⁷.

At this time, open, useroriented innovation principles became central to the EU's competitiveness and innovation policy. Experts from the Directorate-General for Information Society and Media, including Bror Salmelin and Olavi Luotonen, played instrumental roles in fostering the Living Labs policy. They collaborated closely with companies, cities, and regions, laving the groundwork for Living Labs to thrive within a supportive policy framework.

A New European Interpretation of Living Labs

The European interpretation of Living Labs diverged from the USA-originated Home *Labs* pioneered by Professor Mitchell. In Europe, Living Labs evolved into a model where users were studied and involved within their real-world environments rather than in controlled, lab-based settings. This shift emphasised that innovation should be tested and shaped within the contexts where it would ultimately be used, a principle that continues to guide Living Labs today.

¹⁶ Allwinkle, Sam & Campbell, Fiona & Deakin, Mark & Jesurethnam, Jose. (2007). The IntelCities e-Learning Platform, Knowledge Management System and Digital Library for Semantically-Rich e-Governance Services. The International Journal of Technology, Knowledge, and Society: Annual Review. 2. 31-38. 10.18848/1832-3669/ CGP/v0208/55697.

⁷⁷ Read more: https://www.europarl.europa. eu/meetdocs/2009_2014/documents/empl/dv isbonstrategybn /lisbonstrategybn en.pdf

Expansion and Policy Support

In 2006, the Living Labs movement gained further momentum with a set of EU policy measures. Two notable projects, "Corelabs" and "Clocks"¹⁸, received funding to promote a common European innovation system for ICTs based on Living Labs. These projects also helped establish and support the newly formed ENoLL, which initially consisted of 19 Living Labs across the EU, many of which had previously participated in the Intelcities project.

From this point onward, ENoLL continued to arow. expanding its network annually as Living Labs became increasingly prominent in European research and policy discussions. The movement's growth was accompanied by a surge in academic and practical research, which began exploring the Living Lab methodology as an emerging innovation model. By this time, Living Labs had become a familiar concept in European policy circles.

 ¹⁰ Ballon, P., & Schuurman, D. (2015). Living Labs: concepts, tools and cases. info, 17(4).
¹⁹ Baad more: https://research-and-innovation.ec.

¹⁹ Read more: https://research-and-innovation.ec.eur eu/funding/funding-opportunities/funding-programme: and-open-calls/horizon-europe en

²⁰ Read more: https://environment.ec.europa.eu/strategy zero-pollution-action-plan en

zero-poliution-action-plan_en 21 Read more: https://enoll.org/working-group/jwg-digita sustainability-for-zero-pollution/

Living Labs in Horizon Europe and Beyond

In 2021, the Horizon Europe research adopted by the Stakeholder Platform Zero Pollution. introduced 22 topics explicitly referencing the involvement of Living Labs¹⁹. This inclusion underscored the recognition of Living Labs as a valuable tool in addressing Europe's most pressing challenges.

The European Commission further solidified the role of Living Labs through its five EU Missions, launched to tackle critical global challenges. These include "A Soil Deal for Europe", Climate-Neutral and Smart Cities, Adaptation to Climate Change, Beating Cancer, and Healthy Oceans, Seas, Coastal and Inland Waters.

In 2022, during the launch of Flagship 7 of the European Commission's Zero Pollution Action Plan, the Commission acknowledged the role of Living Labs in reducing pollution in areas such as mobility, energy, waste management, and human health²⁰. Living Labs were further highlighted as essential mechanisms in developing green digital solutions and supporting the digital and green transition. This initiative led to the formation of a Joint Working Group on the Green Deal and the Zero Pollution Action Plan²¹, further solidifying Living Labs' importance in EU policy. Based on the request in the Communication from The Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Pathway to a Healthy Planet for All', especially in the statement in the Flagship 7, ENoLL in collaboration with the European Commission, developed recommendations for using Living Labs to promote climate-

²² Read more: https://zenodo.org/records/14050384

²³ Read more: https://research-and-innovation.ec.europa.eu/ strategy/support-policy-making/shaping-eu-research-andinnovation-policy/new-european-innovation-agenda_en and environment-friendly digital solutions²². These recommendations emphasised the role of citizen engagement and were adopted by the Stakeholder Platform Zero Pollution.

The New European Innovation Agenda, launched in 2022 by the European Commission, aimed at positioning Europe as a leader in deep tech innovation and start-ups. This agenda identified Living Labs as a flagship initiative to help Europe address critical societal challenges and bring innovations to market through public procurement²³. Additionally, Living Labs were also highlighted in key initiatives, including the European Research & Innovation (R&I) partnership for agroecology Living Labs²⁴, the Horizon Europe cancer mission, and the ambition for 100 climateneutral and smart cities by 2030.

In 2024, the "A Soil Deal for Europe" Mission was launched with the goal of establishing 100 Living Labs and lighthouses to advance soil-health by 2030. This ambitious mission illustrates the EU's commitment to using Living Labs as essential instruments to achieve its policy goals, focusing on sustainable solutions through participatory and collaborative approaches²⁵.

This historical journey highlights how Living Labs have become a cornerstone of European innovation policy, evolving from their academic and experimental roots into powerful tools for tackling real-world challenges. By placing people, collaboration, and community needs at the centre of innovation, Living Labs continue to play an indispensable role in shaping a more inclusive and sustainable Europe.

²⁴ Read more: https://research-and-innovation.ec.europa.eu/ research-area/agriculture-forestry-and-rural-areas/ecologicalapproaches-and-organic-farming/partnership-agroecology en

²⁵ Read more: https://research-and-innovation.ec.europa.eu/funding/ funding-opportunities/funding-programmes-and-open-calls/horizoneurope/eu-missions-horizon-europe/soil-deal-europe_en

Research Living Labs

In recent years, Living Labs have emerged as an increasingly significant topic within academic research. This growing recognition is evident in the rising number of publications that reference the term. An analysis of papers indexed in Google Scholar performed in June 2024 containing "Living Lab" or "Living Labs" highlights a steady increase in mentions over time, with a notable surge beginning in 2022. This upward trend reflects the expanding interest in Living Labs as a transformative approach to innovation and cocreation. The establishment of ENoLL in 2006 marked a pivotal moment, coinciding with the early development of Living Lab research and contributing to its steady growth.

that include "Living Lab" or "Living Labs" in their titles—indicating that the concept is central to the study-the increase is more gradual. While the total number relevance of Living Labs across disciplines. of such publications remains smaller compared to those that mention Living Labs peripherally, this gradual rise points academic research, ensuring the concept to a growing academic focus on the core principles and methodologies of Living Labs. In 2023, for example, 385 papers centred on Living Labs as their main topic, while 4.925 publications referenced the concept more broadly.

When focusing specifically on papers This dual trend reflects the richness and complexity of Living Labs as both a concept and a practice. On the one hand, the breadth of references underscores the wide-ranging On the other hand, it also highlights the need for continued efforts to deepen is well understood and accurately applied. While Living Labs have historically been a practitioner-driven phenomenon, the evolving body of research situates them firmly within key frameworks such as Open Innovation, User Innovation, and Responsible Innovation²⁶.



Analysis performed in June 2024.





Under the Horizon 2020 Programme, over 750 projects incorporated Living Labs, and this trend continues under Horizon Europe, with nearly 150 projects already referencing them. This growth is further supported by the explicit and consistent mention of Living Labs in Horizon Europe Work Programmes. In 2023-2024 alone, Living Labs have been cited in more than 20 topics across five different Work Programmes. ENoLL is actively contributing to this expansion, with a portfolio of over 60 projects, 25 of which are currently ongoing. Of these, ENoLL coordinates three projects and collaborates as a partner in 22 others, working closely with 52 of its members²⁷. Together, these figures demonstrate the growing adoption and impact of Living Labs, particularly in addressing complex societal challenges.

Living Labs and Innovation Frameworks

Living Labs serve as dynamic platforms for applying key innovation frameworks, offering practical environments to test and refine new ideas in real-life settings. They stand at the intersection of theory and practice, enabling co-creation and collaboration among diverse stakeholders.

- Open Innovation: At their core, Living Labs embody the principles of Open Innovation by fostering knowledge exchange, enabling multi-stakeholder collaboration, and promoting mutual value creation. This structured approach ensures that innovation processes are both effective and inclusive, leveraging diverse perspectives for optimal results.
- 2. User Innovation: Living Labs place users at the heart of innovation, providing structured spaces where their creative capacities can flourish and be put to productive use. By engaging with different user groups—citizens, businesses, researchers, and public sector actors—Living Labs co-create solutions that are grounded in real-world needs and insights.
- 3. Responsible Innovation: Living Labs also prioritise inclusivity, ethics, and societal impact within innovation processes, aligning closely with the principles of responsible innovation. They ensure that new solutions are not only groundbreaking but also meaningful and beneficial to society. Responsible Innovation ties in with Transition Theory, which emphasises that fundamental societal change often begins on a small scale, through practice-based experiments in local contexts²⁸. Living Labs are ideal spaces for such experimentation, allowing both technological and social innovations to be tested with significant user and citizen involvement.

By bringing together diverse actors in real-life settings, Living Labs facilitate the development of new solutions while generating the insights needed to scale these innovations to other districts, cities, and regions. Through these collaborative, real-world experiments, Living Labs drive meaningful change and contribute to broader societal transformations.



²⁷ Read more: https://enoll.org/projects/

²⁸ Fisher, E., Smolka, M., Owen, R., Pansera, M., Guston, D. H., Grunwald, A., ... & Ribeiro, B. (2024). Responsible innovation scholarship: normative, empirical, theoretical, and engaged. Journal of Responsible Innovation, 11(1), 2309060.

Living Lab organisations: topics, focus domains & business models

Living Labs operate across a wide array of topics, reflecting the diversity of challenges they address and the sectors they engage with. As detailed in the ENoLL Members Catalogue²⁹, their focus areas include:

Artificial Intelligence (AI)

& Emerging Technologies



Agriculture and (Agri-)Food

n

Energy

Urban<u>Areas</u>

Zero pollution & Decarbonisation

Water (Blue Economy)

many Living Labs work across multiple fields objectives and ambitions, the following five and integrate different types of innovation to categories have been identified: achieve their goals.

These categories are not mutually exclusive; To better classify Living Labs based on their



Living Labs for Grand **Societal Challenges**

Living Labs for Policies, Governance, Collaboration, and Innovation Ecosystems

Living Labs for Inclusive Soci(et)al Engagement

Living Labs for Business and Emerging Technologies

> Campus / University Living Labs

²⁹ ENoLL (2024). ENoLL Member Catalogue 2024. Zenodo. https://doi. org/10.5281/zenodo.14180612

Living Labs for Grand Societal Challenges

Living Labs for Grand Societal Challenges focus on addressing complex societal challenges and advancing sustainable and inclusive development. These Living Labs are closely linked to most of the United Nations Sustainable Development Goals (SDGs) and are specifically established to tackle wicked problems—multifaceted issues such as climate change, pollution, (green) energy, health and well-being, soil health, and more. By fostering collaboration among diverse stakeholders, they aim to create innovative, long-term solutions to these pressing global challenges.

These Living Labs are predominantly enablerdriven or research-driven. In enabler-driven Living Labs, a funding body, often a public institution or policy-driven entity, takes the lead in setting the strategic direction, aligning it with relevant policy goals. In research-driven Living Labs, the focus is on research valorisation and dissemination, with universities, and research and development (R&D) organisations playing a key role in shaping their strategic objectives.

One example within this category is **Healthcare and Well-being Living Labs**, which tackle issues such as the aging population, eHealth applications, assistive technologies, and patient-centred care. These Living Labs facilitate collaboration between hospitals, healthcare providers, universities, R&D organisations, companies, and representatives of patient groups to co-create innovative solutions for improving quality of life and healthcare systems.

Another example in this category is **Energy** and **Environmental Living Labs** address critical topics like energy efficiency, renewable

energy, climate change, and sustainability. These labs often involve partnerships between utility companies, environmental organisations, aovernments. universities. and tech companies. Their focus spans from renewable energy and smart grids to circular economy initiatives and biodiversity conservation. A notable subcategory of this type is circular economy Living Labs, which are dedicated to testing, promoting, and implementing circular economy principles. Key topics include waste management, product life extension, material innovation, and new circular business models.

Within the environmental sphere, significant attention is being directed toward water and soil. Policy initiatives such as Water Europe's atlas of Water-Oriented Living Labs (WOLLs)³⁰ highlight over 100 Living Labs addressing water guality, resilience to floods and droughts, and other water-related challenges. Similarly, the EU Mission: A Soil Deal for Europe aims to establish 100 Living Labs and lighthouses to lead the transition towards healthy soils by 2030³¹. These Living Labs work on topics such as soil quality, sustainable land management, and resilience against environmental degradation. ENoLL plays an active role in these policy initiatives and the associated projects, further promoting innovation in these critical domains.

Another rapidly expanding category is **Rural** and Agricultural/Agrifood Living Labs, which focus on sustainability and agriculture-related challenges in rural settings. These Living Labs emphasise responsible innovation and have seen a significant increase in activities and certified Living Labs in recent years. They are further supported by specific policy actions, international networks, and summits.





SDG 2 (No Hunger)

SDG 3 (Good Health and Well-Being) SDG 6 (Clean Water and Sanitation) SDG 7 (Affordable and Clean Energy) SDG 11 (Sustainable Cities and Communities) SDG 12 (Responsible Consumption and Production) SDG 13 (Climate Action) SDG 13 (Life Below Water) SDG 15 (Life on Land) SDG 17 (Partnerships for the Goals)

³⁰ Water Europe (2019). Atlas of the EU Water Oriented Living Labs. https:// watereurope.eu/wp-content/uploads/2019/07/Atlas-of-the-EU-Water-Oriented-Living-Labs.pdf

³¹ Read more: https://research-and-innovation.ec.europa.eu/funding/ funding-opportunities/funding-programmes-and-open-calls/horizon-europe/ eu-missions-horizon-europe/soil-deal-europe_en

and Innovation Ecosystems

Collaboration. operate. These Living Labs are typically It is worth noting that the term **Urban** taking the lead in setting the strategic urban interventions. While these

the concept of *Smart Cities* continues to The topics addressed by Urban Living have emerged as a complementary and, national initiatives, often include urban in many cases, more inclusive approach. planning, public services, and the associated with technology-driven, top- These initiatives provide a platform for Labs adopt a more bottom-up approach innovative solutions in real-life settings, that respond to the specific needs and In addition to Urban Living Labs, this challenges of their urban or regional category also encompasses Policy context, allowing for greater flexibility and Living Labs and related initiatives adaptability. In some cases, Smart City such as **Regulatory Sandboxes.** The the establishment of Urban Living Labs, has grown significantly in recent and reinforce one another. While Living dedicated working group on Living Labs

Living Labs for Policies, Governance, serve. In practice, the distinction between

Related ENoLL Working Groups:



Link to SDGs:



SDG 8 (Decent Work and Economic Growth) SDG 9 (Industry, Innovation, and Infrastructure) **SDG 11** (Sustainable Cities and Communities) **SDG 16** (Peace, Justice, and Strong Institutions) **SDG 17** (Partnerships for the Goals)

Related ENoLL Working Groups:

Living Labs for Inclusive Soci(et)al Engagement

focus on addressing social challenges a powerful medium for storytelling, advocacy, by social inclusion, community resilience, amplifying the impact of these initiatives. equitable economic development. and These Living Labs often centre on the The key areas of operation for these Living principles of collaboration, co-creation, and Labs include social inclusion, participatory empowerment, involving a diverse array of stakeholders in their initiatives. While These initiatives aim to build stronger, more these labs are typically enabler-driven, with NGOs, community groups, or public sector organisations taking a leading role in their strategic direction, they can also be userdriven or utiliser-driven, depending on the Living Labs harness the power of creative context and goals.

type of Living Lab frequently includes NGOs, community groups, public sector organisations, social science researchers, The outcomes of Living Labs for Inclusive practitioners. The inclusion of art and artists play a critical role in fostering spaces that empower communities and economic benefits for communities.

Living Labs for Inclusive Social Innovation engage diverse audiences. Art also serves as developing solutions that foster and raising awareness of social issues,

governance, culture, and cultural heritage. resilient communities and address systemic inequalities through innovative approaches. Within this category, creativity and design Living Labs also play an important role. These industries, design thinking, and artistic expression to develop innovative solutions The stakeholder ecosystem for this for social issues, contributing to both cultural enrichment and social innovation.

(vulnerable) citizens, artists, and creative Social Innovation typically manifest as social innovations in the form of new policies, participatory governance models, creativity, inspiring innovative solutions, or social entrepreneurship initiatives. and encouraging new ways of thinking. By These solutions often have a transformative blending artistic expression with participatory impact, creating pathways for systemic processes, these Living Labs create inclusive change and fostering long-term social and





SDG 5 (Gender Equality) SDG 10 (Reduced Inequalities) SDG 16 (Peace, Justice, and Strong Institutions) **SDG 17** (Partnerships for the Goals)

Living Labs for Business

technologies such as AI, Augmented automotive, and logistics. This category Computing, and EdTech, among others. a Service, Living Labs as Research These Living Labs are often provider- Infrastructures, and initiatives connected driven or utiliser-driven, with strategic to incubators and tech transfer activities,

Lab, typically involving tech companies, and Experimentation Facilities (TEFs)³² universities, start-ups, and end-users Promoted by the European Commission,

Collaboration is central to this type of Living category is the emergence of Testing



Related ENoLL Working Groups:



Digital Urban Systems & Solutions for **Transitions Urban** Innovation



SDG 8 (Good Jobs and Economic Growth) SDG 9 (Industry, Innovation, and Infrastructure) **SDG 17** (Partnerships for the Goals)

³² Read more: https://digital-strategy.ec.europa.eu/en/faqs/testing-andexperimentation-facilities-tefs-questions-and-answers

Campus / University Living Labs

previously are not mutually exclusive, as pressing societal challenges. The rise of overlaps and crossovers between them University Living Labs highlights the need are common. However, a specific type of for greater clarity and understanding of Living Lab warrants individual attention due the Living Lab concept and its operational to the growing interest and activity in the framework to fully realise their potential. area: University Living Labs and Campus as a Living Lab. Despite their increasing Alongside these initiatives, the concept prominence, these concepts often fall of Campus as a Living Lab is also gaining under the same terminology, even though their approaches and objectives can vary resembling small cities or villages but on a significantly.

Universities are traditionally hubs of knowledge creation and innovation. However, they often struggle with translating this knowledge into societal impact, a challenge However, they differ from broader University sometimes referred to metaphorically as the Living Labs in their place-based focus, with "ivory tower" phenomenon. In response, many universities are adopting the Living Lab concept as a way to bridge this gap, fostering stronger connections with their local communities and addressing societal challenges more directly.

Some focus on student-oriented projects significant potential. They underscore designed to apply theoretical knowledge to the need for further research, support, practical contexts, although these might not and exchange of best practices to drive fully embody the characteristics of a true this evolution and ensure universities can Living Lab. Others take a more ambitious maximise their societal contributions through approach, involving universities in multi- Living Labs.

The categories of Living Labs discussed stakeholder collaborations that address

traction. University campuses, often more manageable scale, provide unique opportunities for real-life testing and experimentation. These campus-based initiatives use the physical site as an asset for conducting on-site tests and experiments. testing typically limited to the campus itself. A key challenge lies in assessing how well findings from these controlled environments translate to broader, real-world contexts.

Despite these differences, both University Living Labs and Campus as a Living Lab University Living Labs come in diverse forms. represent exciting developments with

Related ENoLL Working Groups:



SDG 4 (Quality Education) SDG 9 (Industry, Innovation, and Infrastructure) SDG 11 (Sustainable Cities and Communities) **SDG 13** (Climate Action) **SDG 17** (Partnerships for the Goals)

Living Lab **Governance Model**

The governance model of a Living Lab is a critical component that influences its strategic direction, operations, and long-term sustainability. The governance The legal structure of a Living Lab can structure must ensure coordination and collaboration among diverse stakeholders, entities such as non-profit organisations, including local governments, academic foundations, or trusts, while others function institutions, private entities, and citizens (macro level). Effective governance such as a municipality, university, or promotes inclusivity, adaptability, and shared decision-making, all of which are essential for the success of Living Labs across various domains.

A key feature of Living Lab governance is sources. On the other hand, when the early and continuous involvement of operating under a host organisation, the all stakeholders in the decision-making process as well as in the operational for the management of resources, financial activities. This ensures that the diverse operations, and infrastructure. perspectives and needs of different participants are integrated into the project In either case, it is crucial that the design and implementation. To facilitate this, a comprehensive governance and activities of the Living Lab with those framework should be established, which clearly defines the roles and The model should also ensure the flexibility responsibilities of each stakeholder, to adapt to changing circumstances provides mechanisms for coordination, while maintaining transparency and and supports transparent communication. accountability.

Legal and Organisational **Structure**

vary, with some operating as independent under the umbrella of a host organisation. government department. When a Living Lab operates as an independent entity, it has greater control over its finances, including the ability to manage grants, service revenues, and other funding host entity typically assumes responsibility

governance model aligns the objectives of the host or collaborating organisations.



³³ Voorwinden, A., Van Bueren, E., & Verhoef, L. (2023). collaboration in the Smart City: Legal and governance s Living Labs. Government Information Quarterly. 40(4). 1

Types of Governance Models

Living Labs can adopt different governance models depending on the size, scope, and stakeholders involved. Below are three primary governance structures that can be implemented:

- Centralised Governance In a centralised governance model, decision-making authority is concentrated in a single entity, such as a leading government agency or academic institution. This structure allows for a clear strategic direction and streamlined resource management, but it may limit the diversity of input from other stakeholders. Centralised governance may struggle with flexibility, and decisionmaking can be slow if the central entity has competing priorities or agendas³⁴.
- 2. Decentralised Governance In а decentralised model, decision-making is distributed among multiple stakeholders, including public institutions, private companies, citizens, and research organisations. This approach fosters innovation by leveraging the expertise and perspectives of a diverse group of actors. However, it can lead to longer decisionmaking processes, particularly when consensus is required. The complexity of managing collaboration among many diverse stakeholders may also pose a challenge.
- Collaborative Governance A collaborative 3. governance model seeks to combine the strengths of both centralised and decentralised approaches. Here, a central entity or core group sets the strategic direction and overall framework for the Living Lab, while actively seeking input and participation from a broader group of stakeholders. This model fosters inclusivity and encourages diverse perspectives, which can lead to more creative and adaptable solutions. However, it requires strong facilitation and conflict resolution skills to ensure that all stakeholders are engaged and that no single group dominates the decision-making process³⁵.

Challenges in Governance

The complexity of Living Labs often leads to specific governance challenges. These include:

- Alignment of Goals: Different stakeholders may have varying priorities, which can lead to misalignment between the Living Lab's objectives and those of participating entities. A shared vision and clear communication are essential to mitigate these challenges.
- Funding and Resources: Securing adequate funding can be difficult, especially when stakeholders have differing priorities. A governance structure that supports effective resource management and identifies diverse funding sources is crucial.
- Bureaucracy and Regulations: Navigating regulatory and bureaucratic processes, particularly when working with public sector entities, can delay innovation. A flexible and adaptive governance structure is needed to overcome these hurdles.
- Stakeholder Engagement: Ensuring active and meaningful participation from all relevant stakeholders, including citizens, businesses, and government agencies, requires effective communication and coordination.
- Data Sharing and Privacy: Managing data sharing between stakeholders while maintaining privacy and security can be a significant challenge. Clear policies and agreements on data governance are necessary to address this issue.
- Sustainability: Ensuring the long-term sustainability of a Living Lab, both in terms of funding and its ability to remain relevant to evolving urban challenges, requires careful planning and continual adaptation.

Relational Governance

Relational governance is a crucial aspect of Living Labs, emphasising continuous coordination and cooperation among stakeholders. It recognises that Living Labs are dynamic environments where goals and priorities may shift over time, and thus, governance should be flexible enough to accommodate these changes³⁶. Relational governance focuses on collaborative problemsolving, joint activities, and mutual learning. The success of a Living Lab depends on the ongoing interaction and engagement of all participants, which helps to ensure that the project evolves in line with both the immediate needs and longterm goals of the stakeholders involved.

In summary, the governance model of a Living Lab plays a vital role in its ability to foster innovation, ensure stakeholder engagement, and achieve successful outcomes. Whether centralised, decentralised, or collaborative, the governance structure should facilitate continuous coordination, inclusive decision-making, and the flexibility to adapt to new challenges and opportunities. The success of a Living Lab relies on effective governance practices that support transparency, participation, and collaboration among all stakeholders³⁷.

³⁴ Hadfield, P., Sharp, D., Zarea, M., Pigeon, J., Peng, X., Rye, S., & Raven, R. (2023), Governing University Living Labs for Sustainable Development: Lessons from International Case Studies (p. 31589985 Bytes). [object Object]. https://doi org/10.26180/22138073

³⁵ Lucchesi, G. P., & Rutkowski, E. W. (2019). Living Labs: Science, Society and Co-creation. In W. Leal Filho, A. M. Azul, L. Brandli, P. G. Özuyar, & T. Wall (Eds.). Industry, Innovation, and Infrastructure (pp. 1-10). Springer International Publishing, https://doi.org/10.1007/978-3-319-71059-4_74-1

³⁶ Colombelli, A., Paolucci, E., & Ughetto, E. (2019). Hierarchical and relational governance and the life cycle of entrepreneurial ecosystems. Small Business Economics, 52(2), 505–521. https://doi.org/10.1007/s11187-017-9957-4

³⁷ 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. https://doi.org/10.1016/j. indmarman.2013.12.016

Living Lab Business Models

change form, or cease to exist over time. This

Public Funding Model: Many Living

"Living-Lab as a Project", many Living Labs strategic ambitions. This type of Living Lab

Partnership Model: In this model, shared, often blending private investment

Corporate Sponsorship Model: Some Living Labs are funded primarily by one or

Membership Model: Some Living Labs

- and networking opportunities. This model
- **Community-Supported Model:** Certain to complex challenges. sustainability unless combined with public funding, such as participatory budgeting.
- **Hybrid Model:** In reality, most Living Labs This flexibility allows Living Labs to remain

in domains such as healthcare, where In addition to business models, Intellectual access to specialised knowledge, tools, or **Property (IP)** plays a vital role in the innovation ideas generated by stakeholders. Typically, • Service-Based Model: Living Labs can any IP generated through Living Lab projects generate revenue by offering specialised is owned by the partner organisations management. These are often referred to such as the World Intellectual Property Organisation (WIPO) treaties, which provide • Incubator/Accelerator Model: Some However, the enforcement and protection Living Labs function as incubators or of Intellectual Property Rights (IPR) are

offs. However, the focus on financial building trust among partners and fostering returns in incubators and accelerators long-term collaboration. By addressing both

Living Labs: Value Creation and Impacts

Living Labs, as dynamic innovation and the co-creation of solutions multiple sectors and stakeholders.

innovation, societal transformation, they serve.

ecosystems, create significant value that meet real-world challenges. through their unique characteristics. Their characteristics-such as active These ecosystems foster value creation user involvement, multi-stakeholder not only at the project level but also participation, orchestration, coextend their influence on organisational creation, real-life experimentation, and community levels. The most visible and a multi-method approach-create and measurable aspects of this value tangible and lasting impacts that creation typically manifest within benefit communities, industries, and individual Living Lab projects, yet their regions. Through their collaborative impact can reach far beyond specific and user-centric approach, Living initiatives, creating ripples across Labs facilitate the development of solutions that are not only innovative but also deeply aligned with the needs Living Labs are instrumental in driving and aspirations of the communities



Living Labs and **Their Role** in Value Creation

Living Labs drive value creation through their six defining characteristics, which not only shape the operational framework of each Living Lab but also enhance and societal impact. Below is a deeper exploration of how these characteristics directly contribute to value creation:



Active User Involvement: Actively involving and relevant outcomes. By incorporating users users from the outset of the innovation process This early and ongoing engagement helps to identify flaws and barriers in solutions before they are finalised, resulting in more user-aligned

in the co-design and testing stages, Living ensures that their needs, preferences, and Labs increase the creativity and desirability feedback are integrated throughout the project. of innovations, making them more likely to be adopted. This approach also enhances the innovation's impact as it responds directly to the practical needs of the users.



Involving Multiple Stakeholders: inclusion of diverse stakeholders —including government, academia, businesses, and critical buy-in and support for the innovation, civil society- brings multiple perspectives, helping to reduce time-to-market and resources, and expertise into the innovation process. This broader perspective enhances capabilities, problem-solving collaboration across disciplines, and creates it is widely accepted and adopted across solutions that are more sustainable and different sectors and communities.

The robust. By involving key decision-makers early in the process, Living Labs secure improve the scalability of solutions. This collaborative approach also increases the fosters overall impact of the innovation by ensuring



Adopting a Multi-Method Approach: The such as qualitative research, quantitative multi-method approach within Living Labs analysis, and experimental testing, Living combines various innovation techniques and Labs boost creativity and problem-solving tools that are tailored to the specific goals of capacity, ensuring that the solutions each project. This flexibility enables Living Labs to respond to complex challenges by adaptable. This approach also enhances the selecting methods that align with the problem at hand and the needs of the stakeholders the innovations more trustworthy and involved. By incorporating diverse methods, applicable to real-world settings.

developed are not only effective but also validity and reliability of the results, making

Orchestration: Effective ensures seamless coordination among innovations can evolve rapidly in response diverse stakeholders, maintaining alignment to changing conditions. This ensures that with the shared objectives of the Living the innovation process remains coherent Lab. This collaborative leadership reduces and goal-oriented, even when managing fragmentation and enhances efficiency, complex, multi-stakeholder projects. The allowing for better risk management result is an accelerated innovation cycle with and smoother integration of various greater adaptability and better alignment contributions. Strong orchestration promotes with community needs.

orchestration a flexible, adaptive environment where



advantages of Living Labs is their ability to coand realistic feedback that can significantly the solution-oriented stages. By engaging users and stakeholders directly in these real- innovation to stakeholders and investors.

Real-Life Experimentation: One of the key world trials, Living Labs ensure that solutions are tested for practicality and effectiveness in create, co-design and test solutions in real-life actual use cases. This real-world validation of settings, outside of controlled environments. concepts helps mitigate potential risks early This experimentation provides highly relevant in the process, ensuring that the solutions developed are market-ready and applicable improve the outcomes of innovation, in the in everyday contexts. Additionally, this real-life early problem-oriented stages as well as in testing provides a strong evidence base that can be used to demonstrate the viability of the



Living Labs, fostering deep collaboration creativity, ownership, and commitment to the among all relevant stakeholders in the innovation, which reduces the risk of rejection innovation process. By engaging stakeholders and improves adoption rates. Furthermore, by in the co-design, development, and testing aligning the interests and objectives of different phases, Living Labs ensure that the resulting groups, Living Labs are able to accelerate timeinnovations reflect a shared vision and are to-market and ensure that innovations are fit for more likely to meet the diverse needs of the purpose and supported by the community.

Co-Creation: Co-creation is at the heart of community. This active participation enhances

Together, these characteristics create added value for Living Labs, resulting in numerous benefits:

- Increased Learning & Intensive Knowledge Exchange: Facilitating
- Better Understanding Stakeholder Problems: Direct engagement

Open Avenues for Collaboration



Impact Assessment in **Living Labs**

2

Given the complexity of Living Labs, which community, there is general consensus that is no simple task. While impact measurement two main methods for assessing impact in

1

Top-Down Impact Assessment: This traditional approach involves defining Key Performance Indicators (KPIs) at the outset of a project. The assumption is that these KPIs are measurable and influenced by the Living Lab. A baseline measurement of the KPIs is taken before the intervention, and they are measured again after the project, with the difference being attributed to the Living Lab. While this approach can be effective, it relies on pre-defined KPIs, which may not always capture the full scope of value generated by the Living Lab.

Bottom-Up Impact Assessment: Aligned with the principles of Living Labs, the bottom-up approach is rooted in the Theory of Change⁴⁰ and focuses on a dynamic, iterative process of measuring impact. The process follows a sequence: inputs → activities → outputs → outcomes → impact. Stakeholders involved in the Living Lab define their own assumptions about change, and these assumptions are validated and iterated throughout the project. This allows for a more flexible and co-creative approach to impact assessment, enabling the identification of unforeseen outcomes or side effects and providing a more accurate reflection of the actual impact of Living Lab activities.

significant value not only through innovative societal challenges and ensuring long-term solutions but also through fostering deeper positive effects. Through their integrated



heory of change analysis: Building robust meories or were of Brogram Evaluation, 32 (2): 155–173, doi:10.31

Living Lab Activities: Tools, Methods, and **Services**

Living Lab activities leverage a range of tools, methods, and services tailored to the specific context, goals, and stages of innovation projects. Within ENoLL, a 4. working group is focused on harmonising the terminology and definitions related to these methods and services, resulting in an ongoing development of a harmonisation wiki⁴¹.

The methods used in Living Labs align with their core characteristics, such as active user involvement, co-creation, multi-stakeholder engagement, and real- For those interested in more detailed life experimentation. These approaches draw from established methodologies in Open Innovation, User Innovation, and Responsible Innovation, which are adapted co-creation, and policy design. These to suit the specific needs of each Living Lab project. The choice of tools and methods the practical application of Living Lab varies across the innovation process, with each phase requiring different techniques approach for stakeholders engaged in Living to ensure a comprehensive approach.

The innovation process in Living Labs typically follows a cycle of four key stages:

- **1. Exploration:** At the outset, the focus is on deeply understanding the problems and needs of stakeholders. This stage involves gathering insights through various qualitative methods, such as interviews, co-creation sessions, and user journey mapping, to form a clear understanding of the challenges faced.
- 2. Co-Design / Co-Creation: In this stage, solutions are co-developed with stakeholders, ensuring that innovations directly respond to identified needs. This phase often involves collaborative workshops and prototyping to iterate on ideas and refine potential solutions.
- 3. Experimentation: The third phase emphasises testing solutions in realworld settings, validating their feasibility, and assessing their problem-solution fit. Living Labs typically conduct pilot studies, field trials, and experimental designs to test the effectiveness of the developed solutions.
- Evaluation: The final phase focuses on assessing whether the solution meets stakeholder expectations and analysing the broader impacts of the Living Lab activities. Evaluation tools often include feedback gathering, testing, and impact analysis to measure the success of the project and its wider societal contributions.

methodologies and tools, several online resources are available, includina comprehensive toolkits on user innovation, resources provide valuable insights into methodologies, offering a structured Lab projects.



⁴¹ Read more: https://vitalise-project.eu/harmonisation-wiki

The Future of Living **Labs: Perspectives** and **Opportunities**

As highlighted throughout this booklet, Living In a rapidly evolving context marked Labs and their diverse network of actors and by urbanisation, climate change, the stakeholders represent a vibrant and innovative depletion of natural resources, and approach to fostering solutions that are both growing inequalities, Living Labs are impactful and forward-looking. They emphasise uniquely positioned to address these sotheimportance of multi-stakeholder engagement called "wicked problems." By providing and co-creation, positioning themselves as collaborative tools and methodologies, catalysts for more inclusive, sustainable, and they empower citizens and regions to responsible innovation practices-essential harness their innovative capabilities, in navigating the complexities of today's fostering resilience and a sense of world. Through their innovation management ownership over solutions to local and strategies and methodological frameworks, global challenges. Living Labs enhance the innovative capacity of the ecosystems in which they operate, To ensure the continued growth and benefiting not only organisations but also effectiveness of the Living Lab movement, individuals and communities.

several areas require focused attention:



- **1. Impact Assessment:** Advancing
- 2. Capacity Building: Enhancing

between Living Labs and various of ideas, Living Labs can continue

Living Labs are instrumental in creating pathways to address the multifaceted challenges of our time. By focusing on these areas of growth, they can continue to drive co-creation, innovation, and empowerment, making a lasting impact on communities and ecosystems worldwide.

ENOLL EMPOWERING EVERYONE TO INNOVATE





European Network of Living Labs

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