



# **THE LIVING LAB METHODOLOGY FOR URBAN DIGITAL TRANSITION**

A practical handbook for cities and innovators

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## Introduction

Urban Living Labs focusing on digital transition provide cities with a collaborative space to design, test, and refine innovative digital solutions together with citizens and other stakeholders. Through participatory methods, Living Labs help cities address complex urban challenges in an inclusive and user-centred way.

The Living-in.EU movement promotes citizen-centred innovation among cities working on digital transition initiatives. This approach is closely aligned with the Living Lab methodology, which places co-creation, real-life experimentation, and collaboration at the core of innovation processes.

This handbook presents the core theoretical foundations of Living Labs and highlights their value in supporting urban digital transition. It also offers practical guidance on setting up and running Urban Living Labs. Through its chapters, readers are introduced to the Living Lab concept, explore its application in urban digital contexts, and gain insight into real-world implementation through case studies from the Torino City Lab/ToMove Living Lab and the GATE City Living Lab.

The handbook is addressed to city representatives and urban innovators, as well as technology-focused professionals, tech providers, and facilitators involved in the design and delivery of digital solutions for cities.



## Foreword

Cities across Europe are facing a period of profound transformation. Digital technologies, data, artificial intelligence and emerging urban platforms are reshaping the way cities plan, govern, deliver services and engage with their communities. At the same time, this transformation raises fundamental questions about trust, inclusion, ethics, accessibility and public value.

Living Labs have long provided a powerful response to complex societal challenges by placing people at the centre of innovation. From their early roots in user-driven innovation and co-creation, Living Labs have evolved into open, collaborative ecosystems that enable cities, citizens, researchers, businesses and institutions to work together on shared challenges. Today, this approach is more relevant than ever, as digital transition accelerates.

Within the Living-in.EU movement, we see a growing recognition that citizen-centred digital transformation is not optional, but essential. Cities need collaborative spaces where experimentation, learning and co-creation can happen safely, ethically and inclusively. Urban Living Labs offer exactly this space: a bridge between innovation and society, between technology and trust, between ambition and real-world impact.

This handbook captures this ambition. It offers an introduction to the Living Lab concept and practical guidance for cities and innovators who wish to apply it in the context of digital transformation. By combining theory and real experiences, it provides a valuable compass for those navigating the complexities of urban digital change. I warmly invite readers to use this publication as a guide, an inspiration and a starting point for their own journeys in shaping inclusive urban digital futures.



**Wim De Kinderen**

ENoLL Chairperson and Programme Director European Affairs, City of Eindhoven / Brainport Development

## About Living-in.EU

Living-in.EU is a European initiative bringing together local, regional and national authorities committed to leveraging digital technologies to improve the quality of life in towns, cities, and regions. Grounded in European values and cooperation, the initiative supports cities in their digital transition by promoting collaboration, knowledge sharing, and the reuse of smart city strategies and solutions.

By connecting cities and regions across Europe, Living-in.EU helps public administrations avoid working in isolation and encourages more coordinated, citizen-centred, and interoperable approaches to urban digital innovation.

Website: [living-in.eu](https://living-in.eu)

## The Living Lab concept and key characteristics

### What is a Living Lab?

According to the European Network of Living Labs (ENoLL), Living Labs are “user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings”<sup>1</sup>.

In simpler terms, a Living Lab is a way of working that brings people together to jointly understand problems, develop solutions, and test them in real life. Living Labs place users and communities at the centre of innovation, ensuring that solutions respond to real needs rather than assumptions.

Living Labs are particularly useful when dealing with complex societal challenges, often referred to as wicked problems. These are problems that:

- Have no single or obvious solution,
- Involve many stakeholders with different interests and priorities,
- Evolve over time.

Urbanisation, climate change, social inequality, and digital transformation are typical examples. Addressing such challenges requires collaboration, experimentation, and continuous learning, which are all core elements of the Living Lab methodology.

### Why do Living Labs matter?

Living Labs matter because they:

- Enable collaboration across sectors and disciplines,
- Integrate diverse perspectives into decision-making,
- Support experimentation in real-world conditions,
- Increase acceptance and usability of solutions.

By combining participation with real-life testing, Living Labs help cities and organisations move from ideas to solutions that are practical, inclusive, and scalable.

### Key characteristics of Living Labs

To better understand how Living Labs work in practice, the following key characteristics explain their core principles.

#### Multistakeholder participation

Living Labs function as ecosystems or platforms that enable communication and collaboration among multiple actors. These actors are commonly described through the Quadruple Helix Model, which brings together public authorities (government), academia and research organisations, the private sector, and the citizens or civil society. This diverse involvement supports more balanced decision-making and shared ownership of both problems and solutions.



## Active User Involvement

End users and stakeholders are not only consulted but actively involved throughout the entire process: from problem identification and framing to co-designing solutions, testing and refining prototypes and contributing feedback during implementation. This continuous involvement helps ensure that outcomes reflect real needs, experiences and constraints.



## Orchestration

Living Labs go beyond simply bringing stakeholders together. They actively orchestrate the innovation process by facilitating collaboration, coordinating activities and aligning efforts with shared objectives. A Living Lab organisation typically plays this facilitating role, ensuring continuity, structure, and focus throughout the process.



## Co-creation

Co-creation is a defining element of Living Labs that refers to the joint development of solutions by all relevant stakeholders. This collaborative approach can be bottom-up (initiated by the community or users), or top-down (driven by public authorities, research organisations or companies). In all cases, it is important that outcomes remain aligned with the real needs of the community and the people affected by the challenge.



## Real-life setting

Living Labs operate in real-life settings. Solutions are developed and tested in the actual environment where problems are encountered, such as neighbourhoods, schools, public spaces or digital services. Testing in real-life conditions allows for immediate user feedback, identification of practical barriers and the development of solutions that fit everyday life.



## Multi-methods approach

Living Lab activities are always problem-driven. Depending on the challenge and the participants involved, a wide range of methods and activities can be utilised, including workshops, digital tools, surveys, interviews, prototyping sessions or field trials. This flexibility allows Living Labs to adapt their approach to different contexts and needs.



## The three-layered model

The term Living Lab can refer to different, but closely connected elements<sup>2</sup>:

## Living Lab organisations

The entity that facilitates and manages innovation processes

- Provides a stable structure for collaboration,
- Defines the mission, values, and strategic direction,
- Ensures governance, ethics, and transparency,
- Coordinates stakeholders and resources,
- Maintains continuity beyond individual projects.

A municipality, university, NGO, private entity, or a partnership between several actors may host the organisation. Regardless of the host, its role is to act as a neutral facilitator, creating trust among stakeholders and supporting co-creation processes.

### Key point:

The organisation ensures that the Living Lab exists before, during, and after specific projects.

## Living Lab projects

Time-bound initiatives addressing specific challenges within the organisation

Each project has:

- A defined objective or problem,
- A limited duration,
- A specific group of stakeholders,
- Dedicated resources and outputs.

Projects are the main way through which Living Labs experiment, test, and learn. They may focus on different themes, such as digital public services, climate adaptation, mobility, or social inclusion. Multiple projects can run in parallel or sequentially within the same Living Lab organisation.

<sup>1</sup> European Network of Living Labs, Schuurman, D., DeLosRíos-White, M. I., & Desole, M. (2025). Living Lab origins, developments, and future perspectives. Zenodo. <https://doi.org/10.5281/zenodo.14764597>

<sup>2</sup> 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. <http://hdl.handle.net/1854/LU-5931264>

### Key point:

Projects allow the Living Lab to stay flexible and responsive to emerging needs.

## Living Lab activities

The methods, tools and actions used in projects

They can be:

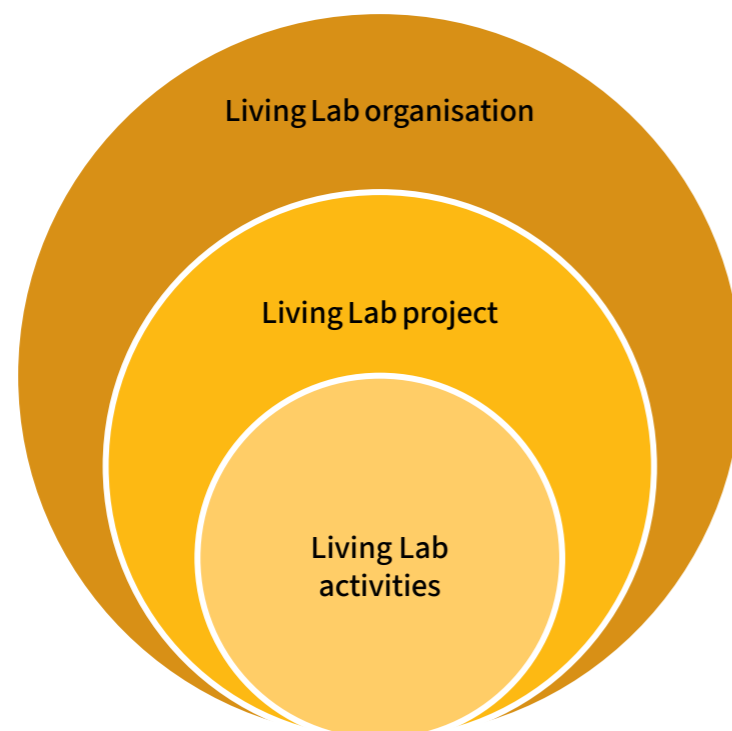
- Co-creation workshops,
- User testing sessions,
- Pilots and experiments,
- Data collection and evaluation,
- Community events or digital engagement activities.

Activities are problem-driven and selected based on the needs of participants and the context. A Living Lab does not apply the same methods everywhere, but it adapts its activities to each project and community.

### Key point:

Activities are the building blocks that turn ideas into tested solutions.

Understanding the distinction between Living Labs as organisations, projects and activities can help clarify how Living Labs operate across strategic, operational, and practical levels.



1 The three-layered model of Living Labs

## Living Labs in Urban Contexts

Although the Living Lab concept emerged from academic research, it has been widely applied in practice. Many active Living Labs demonstrate that this approach is feasible and effective, showing strong capacity to adapt and grow.

Living Labs are particularly well-suited to urban contexts, where city administrations face complex challenges that directly affect citizens. By involving communities in the innovation process, cities can better understand local needs and develop solutions that create real public value.

The next chapter focuses specifically on Urban Living Labs that support digital transition, exploring how this methodology is applied in cities working towards more inclusive and innovative digital futures.

## Living Labs for Urban Digital Transition

Living Labs have been closely linked to digital innovation since their early development. Even before the term “Living Lab” became widely used, cities and researchers were experimenting with participatory approaches to digital technologies. Early initiatives such as cooperative and user-centred IT design<sup>3</sup>, social experiments with information technologies<sup>4</sup>, and the emergence of “digital cities”<sup>5</sup> laid important foundations for today’s Living Labs.

What distinguishes today’s urban digital transition is not only the increasing development and presence of advanced technologies, but the recognition that technology alone does not create better cities. Digital city initiatives often focus on infrastructure, platforms, and access to digital information, and while these efforts expand connectivity, they often place technology at the centre. Urban Living Labs respond to this limitation by shifting the focus towards co-creation, participation, and real-life experimentation, ensuring that digital innovation is shaped by the people it is meant to serve.

For cities, Urban Living Labs offer a clear framework for navigating digital transformation. They create structured yet flexible environments where public authorities, citizens, researchers, and private actors can collaboratively explore digital solutions before they are scaled or institutionalised. This reduces implementation risks, improves usability and acceptance, and supports evidence-based policymaking. Living Labs also help cities align digital initiatives with broader urban goals, such as sustainability, social inclusion, and quality of life. Moreover, by developing people’s skills and digital literacy, Living Labs can change how communities perceive and interact with smart city initiatives. Older adults, in particular, seem to benefit strongly<sup>6</sup>, showing how Living Labs can help bridge digital divides.

The urban context itself adds specific value to Living Labs and their approaches. Cities bring together diverse populations, services, infrastructures, and challenges within shared spaces. This makes them ideal environments for testing digital solutions that interact with everyday life, such as digital public services, smart mobility, data platforms, or participatory tools. Real-life testing allows solutions to be refined in real conditions, increasing their relevance, practicality, and long-term impact.

Digital technologies also enhance Living Lab practices themselves. Tools such as open data platforms, digital participation tools, digital twins, and artificial intelligence expand the possibilities for experimentation, simulation, and decision-making. For example, digital twins can support data-driven urban planning by

<sup>3</sup> Pallot, M., Trousse, B., Senach, B., & Scapin, D. (2010, August). Living lab research landscape: From user centred design and user experience towards user cocreation. In *First European Summer School "Living Labs"*. <https://inria.hal.science/inria-00612632/>

<sup>4</sup> Qvortrup, L., Ancelin, C., Frawley, J., Hartley, J., Pichault, F., & Pop, P. (Eds.). (1987). *Social experiments with information technology and the challenges of innovation* (Vol. 114). Springer Science & Business Media.

<sup>5</sup> Ballon, P., & Schuurman, D. (2015). Living labs: concepts, tools and cases. *info*, 17(4). <https://www.emerald.com/insight/content/doi/10.1108/info-04-2015-0024/full/html>

<sup>6</sup> Park, J., Watanabe, K., Akasaka, F. et al. A framework for analyzing the role of living labs in smart cities: insights from a case study in Japan. *Discov Sustain* 6, 788 (2025). <https://doi.org/10.1007/s43621-025-01729-1>

modelling environmental impacts, infrastructure performance, or future scenarios<sup>7</sup>, while AI can help analyse complex datasets or personalise public services. When embedded in Living Labs, these technologies can be tested responsibly and transparently.

Emerging developments such as the Citiverse further highlight the importance of citizen-centred innovation. As cities explore immersive environments, AI-driven services, and interconnected digital-physical spaces, questions of trust, inclusion, ethics, and accessibility become even more critical. Urban Living Labs provide a safe and collaborative space to explore these technologies, ensuring that citizens are active contributors to its design and governance.

By placing citizens at the centre of digital transformation, Urban Living Labs help cities enforce approaches that are socially grounded, inclusive, and future-oriented. In doing so, they support cities in shaping digital transitions that reflect shared values, respond to real needs, and create lasting public value.

## Setting up a Living Lab

Setting up a Living Lab that focuses on urban digital transformation is a collaborative process that requires the involvement of multiple stakeholders from its initial conceptualisation and prior establishment. This chapter provides practical guidance for setting up and running such a Living Lab. It introduces core elements, governance considerations, stakeholder roles, and financing options to support sustainable living lab operations.

### The Living Lab as a system

An Urban Living Lab, such as any Living Lab, is not a one-off initiative or a single pilot project, but a system that connects people, processes and resources to support *continuous innovation* in real-life settings. For this reason, there is no single Living Lab model, as each Living Lab is shaped by its local context, goals, and stakeholders.



<sup>7</sup> Almeida, F., & Deutsch, N. (2025). Urban Living Labs as Catalysts for Innovation: Advancing Urban Ecosystems within the Quintuple Helix Model. *Urban Governance*. <https://www.sciencedirect.com/science/article/pii/S2664328625000282>

As previously mentioned, in practice, a Living Lab can be understood on three levels:

- As an organisation
- As a set of projects
- And as a portfolio of activities and methods

Having this distinction in mind helps cities and organisations plan, manage, and sustain their Living Lab over time.

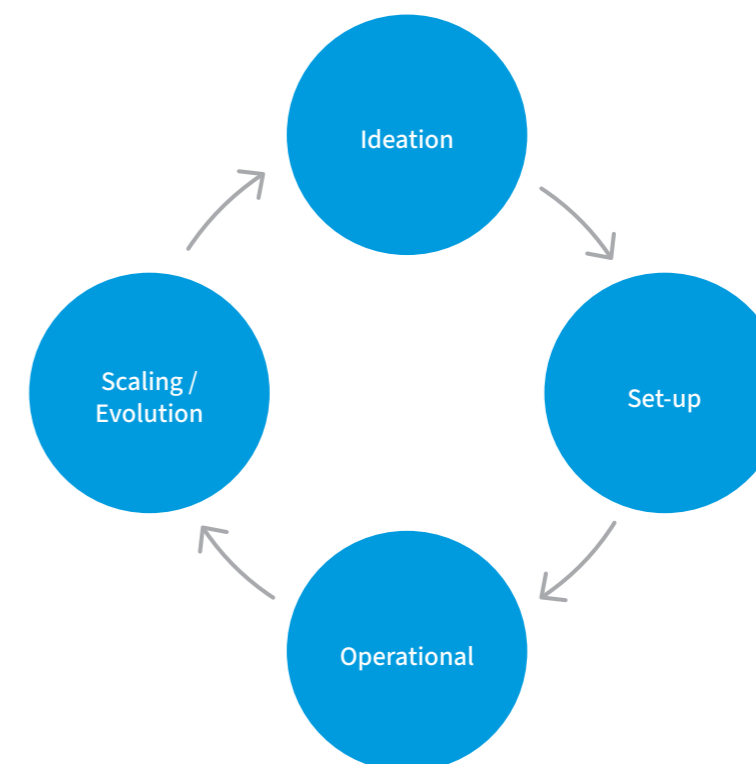
### Living Lab lifecycle

Living Labs are not permanent structures. They develop gradually as relationships mature, capabilities grow, and priorities change. This is especially applicable when the Living Lab focuses on digital innovations, which not only continuously change but also actively affect the world around us. Understanding a Living Lab as a process rather than a fixed model helps cities and organisations make realistic decisions and plan for sustainability.

Most Living Labs go through a series of maturity phases that get repeated through an iterative process to adjust to new developments. While the pace and direction may vary depending on context, these phases provide a reference for planning and reflection.

1. Ideation
2. Set-up
3. Operational
4. Scaling / Evolution

These phases apply both to Living Lab organisations and individual Living Lab projects.



<sup>8</sup> Frey, C., Hertweck, P., Richter, L., & Warweg, O. (2022). Bauhaus. MobilityLab: a living lab for the development and evaluation of AI-Assisted services. *Smart Cities*, 5(1), 133-145. <https://www.mdpi.com/2624-6511/5/1/9>

## Ideation

The ideation phase focuses on exploring the need and potential for a Living Lab.

Typical objectives:

- Identifying potential challenges to address,
- Mapping relevant stakeholders,
- Defining a shared vision and purpose,
- Testing initial interest and commitment.

This phase often includes informal discussions, exploratory workshops, and early stakeholder engagement. At this stage, structures are lightweight and flexible.

### Key questions at the ideation stage

What problem are we trying to address?

Why is a Living Lab approach suitable?

Who needs to be involved?

What value could this create for the city and its citizens?

Why lifecycle thinking matters?

## Set-up

The set-up phase turns ideas into a functioning structure.

Typical objectives:

- Selecting or confirming the host organisation,
- Establishing governance and decision-making processes,
- Defining roles and responsibilities,
- Securing initial funding and resources,
- Launching first pilot projects.

This phase requires more formalisation while keeping room for experimentation.

### Key outputs of the set-up phase

Governance model

Stakeholder agreements

Initial funding plan

First Living Lab projects

## Operational

In the operational phase, the Living Lab delivers regular activities and projects.

Typical objectives:

- Running co-creation and experimentation processes,
- Coordinating multiple stakeholders and projects,
- Generating evidence, insights, and results,
- Strengthening trust and visibility within the local ecosystem.

At this stage, the Living Lab builds credibility and demonstrates value to both participants and decision-makers.

### What changes at the operational stage

More structured processes

Increased stakeholder expectations

Need for stable coordination and funding

Stronger focus on impact and learning

## Scaling and evolution

The scaling and evolution phase focuses on long-term sustainability and impact.

Typical objectives:

- Expanding activities to new themes or neighbourhoods,
- Integrating Living Lab outcomes into policies or services,
- Diversifying funding sources,
- Adapting governance to broader participation,
- Sharing knowledge and replicating approaches.

Not all Living Labs aim to grow in size. For some, scaling means deepening impact or institutionalising practices.



**Be careful!** Scaling does not always mean growth

Scaling can mean replication, integration into policy, or long-term embedding, not only expansion.

Understanding the Living Lab lifecycle helps cities and organisations:

- Choose appropriate governance models,
- Define realistic roles and responsibilities,
- Align funding strategies with maturity stages,
- Anticipate common challenges and risks.

Lifecycle thinking also prevents unrealistic expectations, such as demanding immediate results from newly established Living Labs or applying rigid governance models too early. Living Labs grow through phases. Successful Living Labs adapt their governance, roles, and funding as they mature, while keeping citizens and real-life experimentation at the centre.

### Case Study Insight

#### *Practical Lessons from GATE City Living Lab*

A Living Lab for urban digital transition should begin with a transformative vision, not isolated pilots. In our case, parametric urban planning, the 15-minute city concept and air quality monitoring became the entry points for systemic change. These themes connect spatial design, mobility, environmental health and citizen wellbeing. Digital twins, AI and sensor data should not be presented as technological upgrades, but as instruments to enable more adaptive, responsive and evidence-based cities. The lab becomes a bridge between long-term urban vision and real-time urban intelligence.

## Governance models

Governance defines how a Living Lab is managed, directed, and controlled. It sets the framework for decision-making, coordination, accountability, and ethical conduct.

In Urban Living Labs focusing on digital transition, governance is particularly important. Digital initiatives often involve sensitive data, digital infrastructures, multiple public departments and external technology providers, issues such as ethics, surveillance, and inclusion and long-term impacts on public services and citizens' rights. A clear and transparent governance model helps ensure that digital innovation is citizen-centred rather than technology-driven, ethical, trustworthy, and aligned with public values and policy objectives. In urban digital contexts, governance is not bureaucracy but an enabler of trust, legitimacy, and responsible innovation.

## What is a governance model?

A governance model is the framework through which a Living Lab is organised and operated. It includes:

- Roles and responsibilities,
- Decision-making processes,
- Coordination mechanisms,
- Communication channels (internal and external),
- Ethical principles and safeguards.

Governance operates at both a strategic level (vision, priorities, partnerships) and an operational level (projects, resources, daily coordination).

Governance models should remain flexible and adaptive. As Urban Living Labs mature, their focus, stakeholder composition, and digital ambitions often evolve.

For example:

- A Living Lab initiated within a municipal department may later transition into a multi-stakeholder association,
- Experimental pilots may evolve into long-term digital services,
- Governance mechanisms may expand to include data governance, AI oversight, or citizen advisory boards.

Such adaptability ensures that Urban Living Labs remain responsive to technological change, societal needs, and regulatory developments.

## Designing a governance model

When defining a governance model, Urban Living Labs should reflect collectively on:

- Who are the core stakeholders and decision-makers?
- What roles do they play?
- How are digital projects initiated and approved?
- Who is responsible for data, ethics, and compliance?
- How are resources and funding managed?
- How are citizens and other stakeholders informed and involved over time?
- How is internal communication managed?
- What value does each stakeholder gain from participation?

These questions help ensure that governance supports both innovation and accountability.

### Case Study Insight

*Practical Lessons from GATE City Living Lab*

Urban digital transition requires new institutional reflexes. The biggest challenge is not technology, but shifting mindsets from static planning to dynamic, data-informed governance. Living Labs must operate as neutral coordination spaces where experimentation is allowed. Flexibility in structure, interdisciplinary collaboration and continuous dialogue between planners, technologists and policymakers are essential to avoid siloed innovation.

## Host organisations & institutional set-up

### Roles and characteristics of the host organisation

The host organisation acts as the central coordinating entity of the Living Lab. It provides continuity, leadership, and operational capacity throughout the Living Lab lifecycle.

In Urban Living Labs focusing on digital transition, the host organisation is particularly important because it often:

- Manages access to resources such as digital infrastructure or public data,
- Coordinates across municipal departments and other stakeholders,
- Ensures alignment with digital strategies, ethical frameworks and regulations,
- Acts as a trusted intermediary between citizens and technology providers.
- A strong host fosters collaboration while maintaining neutrality and public trust.

To effectively support an Urban Digital Living Lab, the host organisation should:

- Be committed to open and participatory innovation,
- Have experience in collaboration and facilitation,
- Possess operational and administrative capacity,
- Be well-connected to local communities or have the capabilities to become close to them,
- Understand digital transformation challenges,
- Be adaptive to technological and organisational change.

These characteristics help ensure that digital experimentation remains grounded in real urban needs.

### Types of host organisations

Different types of organisations can host an Urban Living Lab, depending on context and ambition, as each option influences the Living Lab's legal structure, autonomy, funding model, and positioning within the urban ecosystem.

Type	Examples
Public	Municipality, regional authority
Academic	University, research centre
Civil Society	NGO, cooperative
Private	Company, cluster
Hybrid	Partnership or consortium

Although there is NO perfect host, the most suitable host is the one that fits the Living Lab's mission, context, and stakeholders.

### Case Study Insight

*Practical Lessons from GATE City Living Lab*

Being hosted by a university provides credibility, research capacity and long-term stability. However, expectations must be carefully managed and the clarity of roles is crucial. Cities must see the lab as a strategic partner, not merely a technology provider. Aligning expectations around shared impact goals, rather than short-term outputs, helps build durable partnerships.

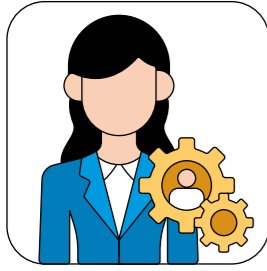
## Roles within an Urban Living Lab

Urban Living Labs bring together diverse actors: city administrations, technology providers, researchers, civil society organisations, and citizens. In digital Living Labs, this diversity is amplified by technical complexity, regulatory and ethical requirements, cross-departmental collaboration and long development and implementation cycles.

Clearly defined roles help:

- Avoid duplication and confusion,
- Ensure accountability in digital experimentation,
- Support effective collaboration across disciplines,
- Build trust among participants.

While each Living Lab adapts roles to its context, most Urban Living Labs include the following core functions.



### **Living Lab Coordinator / Manager**

#### **Main role:**

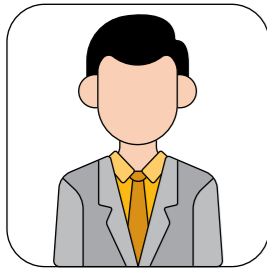
Oversees day-to-day operations and ensures alignment with the Living Lab's mission and governance model.

#### **Key responsibilities:**

coordinating stakeholders and activities, managing timelines and resources, ensuring communication and reporting, acting as a bridge between strategic and operational levels.

#### **In digital Living Labs:**

The coordinator often ensures alignment between digital pilots and city digital strategies, procurement rules, and data governance frameworks.



### **Public Authority / City Representative**

#### **Main role:**

Represents municipal interests and ensures alignment with policies and public service objectives.

#### **Key responsibilities:**

facilitating access to public infrastructure and data, linking Living Lab activities to policy and planning processes, supporting regulatory compliance.

#### **In digital Living Labs:**

This role is essential when testing digital services, AI systems, or data-driven solutions that affect citizens directly.



### **Researchers / Knowledge Partners**

#### **Main role:**

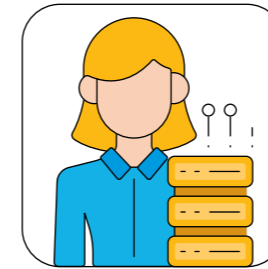
Provide methodological, analytical, and evaluative expertise.

#### **Key responsibilities:**

supporting co-creation and experimentation methods, collecting and analysing data, evaluating impacts and documenting lessons learned.

#### **In digital Living Labs:**

Researchers help assess digital solutions' effectiveness, inclusiveness, and ethical implications.



### **Technology Providers / Innovators**

#### **Main role:**

Develop, adapt, or provide digital tools and technologies.

#### **Key responsibilities:**

contributing technical expertise, co-developing prototypes or platforms, supporting testing and iteration.

#### **In digital Living Labs:**

Their engagement must be balanced by governance mechanisms to ensure public value and avoid vendor lock-in.



## Citizens and User Groups

### Main role:

Act as co-creators, testers, and evaluators of solutions.

### Key responsibilities:

sharing lived experiences and needs, participating in co-design and testing, providing feedback on usability and impact.

### In digital Living Labs:

Citizen involvement helps ensure that digital solutions are accessible, inclusive, and responsive to real urban challenges.

### Additional roles:

- Ethics or data protection officers
- Facilitators
- Community liaisons
- Communication and engagement leads
- Legal or procurement advisors
- Decision-maker / sponsors

Roles can be combined, as in smaller Urban Living Labs, one organisation or person may cover multiple roles. Moreover, roles are not static. As Urban Living Labs mature, coordinators may shift from facilitation to strategic leadership, citizens may move from consultation to co-governance and technology providers may transition from experimentation to service provision. This evolution is particularly relevant in digital contexts, where prototypes can become permanent public services.

## Stakeholder contributions

Types of contributions

Type of contributions	Examples
Financial	Public funding, research grants, private investments, sponsorships
In-kind	Access to facilities, equipment, digital tools
Technological	Platforms, sensors, software
Human resources	Volunteers, interns, research assistants, facilitators
Knowledge	Research data, user insights, training materials, technical know-how

Recognising contributions matters, as it helps clarify expectations from stakeholders. It also supports fair governance, strengthens collaboration and can inform financing and sustainability strategies. In Urban Living Labs focusing on digital innovations, contributions such as data and digital tools are common, and are accompanied by a high strategic value. Having transparency on what the contributions entail is important.

### Contributions vs value

Contribution = what stakeholders bring to the Living Lab (tangible or intangible)

Examples: financial resources, expertise, access to facilities, data

Value = what stakeholders gain from the Living Lab

Examples: positive social impact, improved services or products, strengthened community relations, new business opportunities

Understanding stakeholder contributions also highlights the importance of financial sustainability. While many actors contribute in-kind, stable funding is necessary to:

- Maintain digital infrastructure,
- Support long-term coordination,
- Ensure continuity beyond pilot projects.

This leads directly to the next section on financing.

## Financing an Urban Living Lab

Urban Living Labs require stable and diversified financing to support coordination, experimentation, citizen engagement, and digital infrastructure. While many Living Labs begin with public or project-based funding, long-term viability depends on combining multiple funding sources aligned with the Living Lab's mission, maturity, and stakeholder ecosystem.

Living Labs often operate across sectors and beyond project timelines, with strong public-interest objectives. As a result, they frequently depend on short-term grants, have limited core funding for

coordination and face difficulties monetising citizen-centred innovation. In digital Living Labs, financing challenges are amplified by costs related to digital platforms, data infrastructure, and tools, as well as the maintenance of digital services beyond pilots, and ethical and governance requirements for data and AI experimentation.

Financing is not only about sustaining activities, but about safeguarding independence, trust, and public value in digital innovation.

Before selecting funding sources, Living Labs should agree on a set of guiding principles.

### 1. Mission-aligned funding

Funding should reinforce, not distort, the Living Lab's public value orientation, citizen-centred approach and ethical standards in digital innovation.

### 2. Diversification

Relying on a single funding source increases vulnerability. Sustainable Living Labs should combine public funding, service-based income, partnerships, and in-kind contributions to achieve their goals.

### 3. Flexibility and adaptability

As Living Labs mature, funding models must evolve alongside governance structures, service offerings, and strategic positioning in the urban digital ecosystem.

## Funding across maturity phases

Maturity Phase	Focus	Typical Funding Sources
Ideation	Building vision, mobilising stakeholders	Seed grants, local authority support, university partnerships, in-kind contributions
Set-up	Establishing governance, early pilots	Public grants (local/national/EU), foundations, philanthropy, municipal co-funding
Operational	Delivering services, proving value	Service contracts, membership fees, R&I collaborations
Scaling	Diversifying impact, expanding network	Mixed funding, sponsorships, IP revenues, consulting services, strategic partnerships

Digital Living Labs often require early investment in platforms and data infrastructure, making strong public or institutional backing especially important in early phases.

## Common funding mechanisms

Funding type	What this might include	Considerations
Public funding and grants	Municipal or regional innovation funds; national digitalisation programmes; EU funding (e.g. Horizon Europe, Digital Europe); smart city or AI-related calls	Often essential in early stages; supports public-value experimentation; usually time-bound and project-based; ensure alignment with city digital strategies and capacity to manage reporting
Services & contracts	Facilitation of co-creation workshops; testing and validation of digital services; user research and impact assessment; advisory services for cities or companies	Supports long-term sustainability; requires clear service offering and pricing; risk of mission drift if services dominate public-interest goals
Membership and subscription models	Annual fees from SMEs, start-ups, corporates, universities or public bodies in exchange for access to facilities, user panels, events or pilots	Works best in mature Living Labs; requires transparent governance and clear member benefits; affordability and inclusiveness must be considered
Philanthropic and mission-driven funding	Foundations supporting digital inclusion, ethical AI, sustainability or civic innovation; charitable trusts	Typically thematic and impact-driven; good alignment with citizen-centred innovation; may have limited flexibility or strict focus areas
Innovation outputs, IP & data	Licensing of methods or tools; access to datasets or platforms; IP co-ownership agreements; incubation or acceleration activities	Particularly relevant for AI, data and digital twins; requires early and clear agreements on ownership, access, ethics and citizen rights
Strategic partnerships	Financial sponsorship; provision of AI tools, sensors, platforms, cloud services or data infrastructure; joint innovation projects	Can accelerate digital experimentation; requires clear boundaries to protect independence, ethics and public trust; transparency is crucial

Most successful Urban Living Labs operate hybrid financing models that combine stable public support, market-oriented services, partnerships and sponsorships, among others.

Common risks when seeking and allocating finances include:

- Over-dependence on project funding
- Mission drift due to commercial pressure
- Underfunded coordination and facilitation roles

To mitigate those risks, Urban Living Labs must allocate sufficient resources for core coordination and separate commercial services from governance roles. It is important to regularly review the funding distribution and ensure its alignment with the Living Lab's objectives and values.

### Case Study Insight

#### *Practical lessons from Torino City Lab*

- Match potential sources of funding with the City's strategic priorities.
- Map and build alliances with key stakeholders.
- Co-design goals and activities of the Living Lab with the involved actors.
- Provide administrative and logistical structures to support operations.
- Identify pilot actions and experiments to be deployed.
- Define monitoring and evaluation tools.

#### *Practical Lessons from GATE City Living Lab*

Urban digital transformation cannot rely solely on project-based funding. It requires sustained investment and institutional commitment. European funding can catalyse innovation, but long-term viability depends on embedding the lab within local governance structures and demonstrating tangible public value. Linking digital infrastructure to climate resilience, accessibility and public health strengthens the case for continued support and diversified financing models.

## 5 Key Enablers for Living Labs focusing on digital transition

Enablers are conditions, capacities, or practices that significantly increase the likelihood of success. In digital Living Labs, enablers can relate to governance, trust, data readiness, and institutional alignment.

### Clear strategic alignment with the city's digital agenda

Urban Living Labs are most effective when aligned with city digital transformation strategies, smart city or data strategies, AI or innovation roadmaps, and broader sustainability or inclusion goals.

#### **Why it matters in digital contexts:**

Digital experimentation often intersects existing systems, procurement rules, and public services. Alignment ensures pilots can transition into implementation.

### Strong multi-stakeholder partnerships

Urban Digital Living Labs rely on collaboration between public authorities, tech providers, academia, and civil society, balanced power relations and a shared ownership of outcomes.

#### **Why it matters in digital contexts:**

Digital innovation risks being driven by technology rather than public value. Diverse partnerships help keep citizens and societal needs at the centre.

### Meaningful citizen engagement

Citizen involvement should go beyond consultation and include co-design, testing, feedback and evaluation.

#### **Why it matters in digital contexts:**

AI systems, data platforms, and digital services directly affect citizens' rights, access, and trust.

### Robust data governance and ethics frameworks

Urban Digital Living Labs benefit from clear data ownership rules, transparent consent mechanisms, compliance with data protection regulations, and ethical guidelines for AI and automation.

#### **Why it matters in digital contexts:**

Trust is a prerequisite for experimentation involving personal or urban data.

### Iterative experimentation and learning culture

Living Labs thrive on small-scale pilots, rapid feedback loops, openness to failure and learning.

#### **Why it matters in digital contexts:**

Digital solutions evolve quickly; iterative testing reduces risks and improves usability and impact.



## Common Pitfalls to Avoid

Despite their potential, Urban Living Labs face recurring challenges. Recognising these early helps mitigate risks.

### Weak institutional embedding

Living Labs that operate in isolation from city structures risk limited influence on policy, lack of continuity after pilots, and high dependency on individual champions.

In digital Living Labs, weak embedding makes it difficult to integrate solutions into existing digital infrastructures.

### Tokenistic participation

Inviting citizens to participate without arranging the process for achieving real impact, and enabling feedback loops, undermines trust and legitimacy to the Living Lab. In digital contexts, this is especially sensitive when testing surveillance technologies, data platforms, or AI-based decision systems.

### Short-term funding dependence

Over-reliance on project-based grants and pilot funding can prevent long-term planning and infrastructure maintenance. In digital Living Labs, this affects the sustainability of platforms, datasets, and digital services.

### Unclear roles and expectations

Without clarity, decision-making slows down, conflicts emerge, and accountability is weakened. This is amplified in digital Living Labs due to the technical complexity that accompanies them, the required cross-sector collaboration, and data management responsibilities.

### Technology-driven instead of user-driven approaches

A frequent pitfall is starting an innovation from a technology solution, such as a platform or tool, or a vendor offering, rather than a clearly defined challenge. This can lead to low uptake, limited impact, and citizen disengagement.

Urban Living Labs are designed to learn from challenges, not avoid them entirely. Common pitfalls can become inputs for governance improvement, triggers for capacity building, or opportunities to redesign participation and processes.

## Case studies in focus

### GATE City Living Lab



Kaloyan Karamitov  
*City Living Lab Manager*

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Link: <https://www.gate-ai.eu/en/home/>

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### GATE City Living Lab: a Living Lab focusing on Big Data and Artificial Intelligence

The GATE City Living Lab, based at GATE Institute, Sofia University “St. Kliment Ohridski”, is an urban experimentation environment supporting digital transformation in cities. Located in the Lozenets district of Sofia, it integrates sensor infrastructure, urban data analytics, AI applications and digital twin technologies to enable evidence-based urban planning and mobility management. The Lab works at the intersection of academia, public administration, industry and citizens, focusing on trusted data sharing, urban mobility innovation and the development of an Urban Data Space for Sofia. It operates as a real-world testing ground for data-driven urban policies aligned with European digital and data strategies.



### Torino City Lab



Elena Deambrogio  
*Head of Open Innovation Unit | City of Turin*

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Link: <https://torinocitylab.it/en/>

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### ToMove- The Turin Living Lab dedicated to the future of mobility.

The *ToMove Living Lab* is the open laboratory focused on the development of new smart and sustainable urban mobility scenarios using innovative cooperative, connected and autonomous mobility solutions, integrating them into the “Mobility as a Service” paradigm. With ToMove, the City of Turin and its strategic partners aim to envision and test new technologies and service models to make getting around Turin increasingly efficient, sustainable, safe, and flexible. To achieve this, ToMove welcomes co-experimentation with local mobility operators, research institutions, and businesses. ToMove places citizens and user communities at the heart of its mission, actively involving them in analysis, co-design, and testing activities.





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