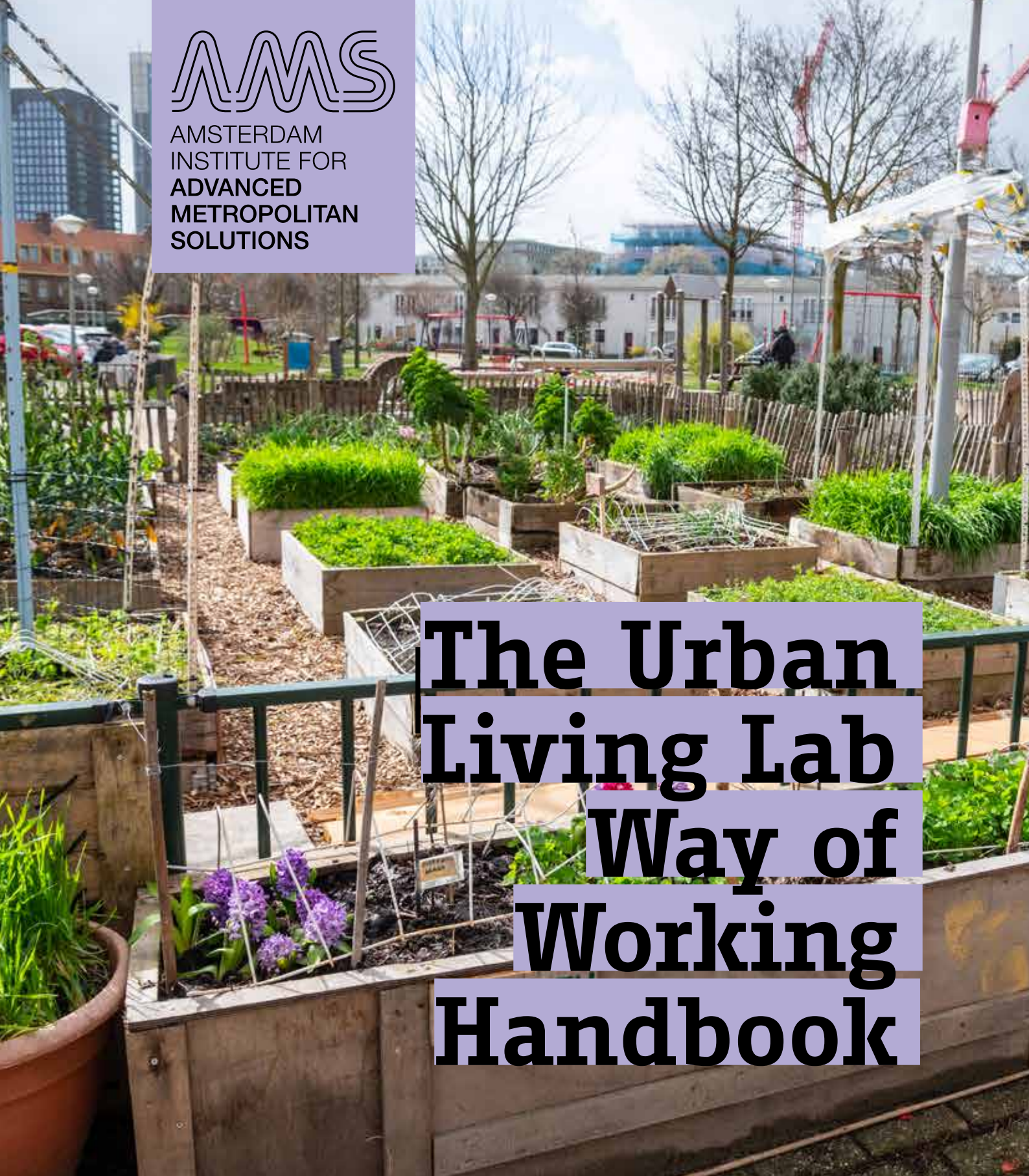

AMSTERDAM INSTITUTE FOR **ADVANCED METROPOLITAN SOLUTIONS**

The Urban Living Lab Way of Working Handbook

The Urban Living Lab Way of Working Handbook

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Colophon

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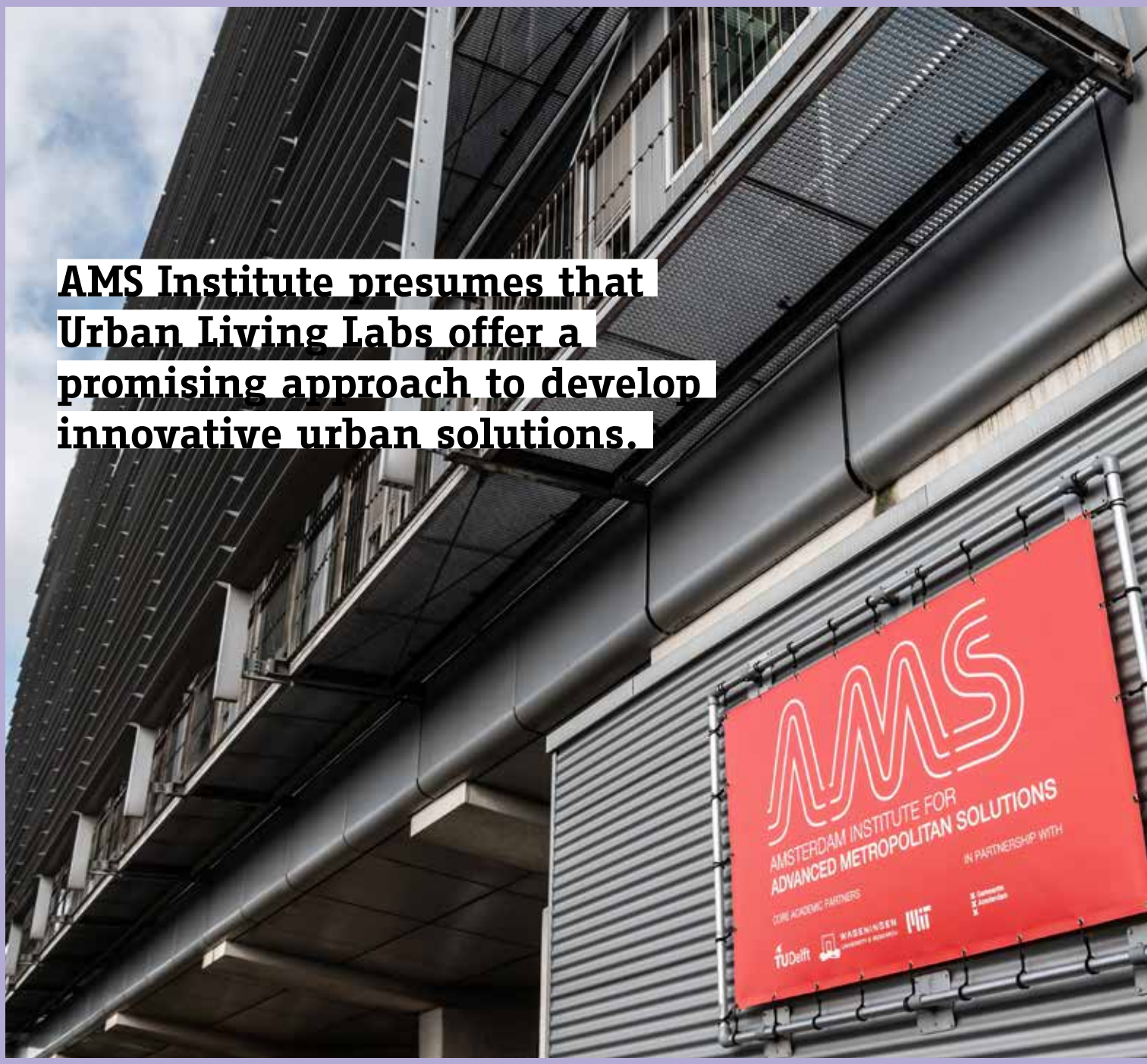
TOEKOMST BESTENDIGE LEEF OMGE VING

This handbook presents the Urban Living Lab Way of Working, a practical guide for developing and coordinating Urban Living Labs.



AMS Institute presumes that Urban Living Labs offer a promising approach to develop innovative urban solutions.

Preface

Cities are complex, ever-changing systems. The challenges they face demand not just incremental innovation but a fundamental rethinking of how we develop and implement urban solutions. AMS Institute believes that Urban Living Labs offer a promising approach to achieving this evolution in complex city development. By embedding experimentation within real-life urban environments, this allows us to create, test, refine, and scale up innovations together with all relevant stakeholders.

This handbook builds on applied research and practical experience, developed through close collaboration between AMS Institute, the City of Amsterdam, Delft University of Technology, Wageningen University & Research, industry partners, and citizens. What makes this publication particularly valuable is that it offers more than a theoretical model for testing —it is also a practical guide, based on over 10 years of experience with urban innovation. It offers an approach to ensure that Urban Living Labs do not remain isolated pilot projects but instead contribute to systemic urban change.

The Living Lab Way of Working outlined in this handbook reflects our ambition to bridge the gap between research, practice, and policy. It is based on a multilevel framework that connects the strategic ambitions of cities with hands-on innovation and experimentation. For this particularly innovative way of working, all stakeholders need to be closely involved, as urban innovation is not about technology alone—it is about continuous collaboration, learning, and adaptation.

I invite you to explore this handbook, whether you are an urban planner, researcher, policymaker, entrepreneur, or citizen. I hope that you will use it to design, implement, and coordinate even more effective Urban Living Labs that create meaningful change. AMS Institute is committed to fostering a network of Living Lab practitioners, inside and outside of the City of Amsterdam, who share knowledge, learn from each other, and push the boundaries of urban innovation together. Let this book be a catalyst for new collaborations and promising experiments. Let's shape the future of our cities together.

Prof.dr.ir. Eveline van Leeuwen,
Scientific Director AMS Institute
Amsterdam, June 2025


1

Contents

Preface 1
Chapter 1: Introduction 4
Chapter 2: Urban Living Labs 10
Chapter 3: A Multilevel Framework 28
Case Example 1: Energy Lab Zuidoost Amsterdam 36
Case Example 2: ATELIER European Network 42
Case Example 3: Marineterrein Living Lab 48
Chapter 4: Before You Start your Urban Living Lab 54
Chapter 5: Urban Living Lab Way of Working 62
Key Activity 1: (Re)Create Shared Mission 72
Case Example 4: Mapping the Innovation Ecosystem 80
Case Example 5: From Stakeholder Mapping to Stakeholder Engagement 82
Key Activity 2: (Re)Design ULL Plan 84
Case Example 6: Collaboration Evolves over Time 92
Key Activity 3: (Re)Design Experiments 94
Case Example 7: Using a Manifesto to Build Trust 102
Key Activity 4: Implement Experiments 104
Case Example 8: Engaging Citizens to Interact with Local Experiments 110
Key Activity 5: Learn from Experiments 112
Case Example 9: Using a Dynamic Learning Agenda 124
Key Activity 6: Integrate and Contextualize 126
Case Example 10: Learning Across Cities 134
Key Activity 7: Disseminate Learnings 136
Case Example 11: Anchoring the Community: The Energy Lab Annual Seminar 142
Case Example 12: Mayor's Manual - Podcasting for Collaboration 144
Key Activity 8: Monitor Systemic Impact 146
Case Example 13: Impact Outcomes for Climate Resilient Cities 154
Chapter 6: Coordinating an Urban Living Lab 156
Chapter 7: Glossary 162
Chapter 8: About AMS Institute & Acknowledgements 168
Literature 172

Chapter 1: Introduction

Urban challenges are complex and interconnected. They require different perspectives and expertise to develop feasible and impactful solutions.

Accelerating Urban Solutions

Like many cities today, Amsterdam faces urgent and complex urban challenges. For example, transitioning to electric transportation, securing affordable and sustainable energy, rethinking food systems, maintaining aging infrastructure, and promoting circular waste practices. These urban challenges are complex and interconnected. They require different perspectives and expertise to develop feasible and impactful solutions. The AMS Institute does this by using Urban Living Labs.

Urban Living Labs (ULLs) bring together policymakers, businesses, researchers, and citizens to iteratively test innovations in real-life urban environments. This hands-on approach helps to refine innovations quickly, uncover opportunities and risks early, and accelerate the learning process. As a result, innovations are better implemented, have a higher chance of adoption, and can be scaled up faster, driving positive change in cities.

Insights from Experience

Since 2014, AMS Institute has developed a range of ULLs across Amsterdam, building deep expertise in managing multi-stakeholder experimentation processes. These experiences revealed that, while ULLs can be very effective, their success hinges on a shared understanding of what a ULL is, guiding roles, responsibilities and potential outcomes. Without this, ULLs risk becoming a collection of scattered experiments and fail to deliver on a wider city impact.

To address this, we developed the Urban Living Lab Multilevel Framework and updated the Living Lab Way of Working as originally presented by Steen & Van Bueren (2017). Together they provide a structured yet flexible approach to guide practitioners through the complexities of setting up and running ULLs—from initial scoping to real-life experimentation and scaling outcomes.

Setting Up and Running Urban Living Labs

This handbook presents the updated Urban Living Lab Way of Working (ULLWOW) and distills the lessons learned by AMS Institute into a practical guide. It equips urban innovators—whether policymakers, entrepreneurs, researchers, innovation managers or

community leaders—with a step-by-step process that combines practical tools, proven methodologies, experiences from practice, and scientific insights. This comprehensive approach helps users design, launch, manage and evaluate ULLs effectively, or determine if an Urban Living Lab is the right approach for their needs.

A Shared Handbook for Diverse Stakeholders

Urban Living Labs unite diverse groups of stakeholders, each with different interests, languages, and expectations. Recognizing that each ULL is unique and needs to be tailored to its specific objectives and context, this handbook does not claim to be the definitive guide or blueprint. However, we trust that it will provide a shared vocabulary and common process to align stakeholders involved in a ULL process, enabling smoother collaboration and clearer decision-making. To support consistent communication among stakeholders, we have developed a glossary of key terms and definitions (see Chapter 8).

How different professionals may benefit from this handbook:

- **Municipalities and Government Agencies.** Develop solutions that align with policy goals and sustainability objectives.
- **Businesses and Industry.** Understand how to collaborate with public and academic partners to develop, test and scale innovative solutions in real-life settings.
- **Researchers and Academics.** Integrate scientific research with real-life urban experimentation.
- **Citizens and Communities.** Find ways to actively participate in shaping urban innovation projects that reflect their needs and shape their bottom-up activities into strategic agendas of other stakeholders.
- **Urban Planners and Designers.** Incorporate participatory and experimental approaches into city planning processes.
- **Educators and Trainers.** Incorporate experiential urban innovation methods into curricula.

Structure

You can use this handbook as both a guide and a reference. You can read it cover to cover to understand the full Urban Living Lab (ULL) process or consult specific sections when tackling particular challenges. You are currently reading Chapter 1 – Introduction.

In Chapter 2, we start with presenting a conceptual foundation of ULLs. Here, we explain the characteristics of an ULL, including the benefits and challenges related to the development of ULLs.

Chapter 3 – The ULL Multilevel Framework – explores how ULLs can address complex urban challenges and introduce the multilevel perspective as a core foundation.

In Chapter 4 – Before You Start an Urban Living Lab – we address the question of whether developing an Urban Living Lab is indeed the best way forward. Here we briefly introduce some alternative approaches that may be more suitable for some situations.

If you decide that developing an Urban Living Lab (ULL) is indeed the best way to go, it is time to go Chapter 5, the core of this handbook. Here we introduce the Urban Living Lab Way of Working (ULLWOW), an iterative process to link urban challenges to real-life experiments. This chapter outlines the eight key activities that together form the Urban Living Lab Way of Working (ULLWOW), offering practical insights and case examples of how to set up and run a ULL.

In Chapter 6 – Coordinating Urban Living Labs – we discuss the roles and competencies needed to manage ULL processes, with a focus on the essential role of the Living Lab Coordinator.

Chapter 7 – Glossary – contains an overview of key terms that explains the key concepts and definitions used in this publication.

We finish with Chapter 8, briefly describing the AMS Institute and acknowledging everyone who has contributed to this publication.

Lets' go!

Whether you are embarking on your first ULL journey, or seeking to optimize ongoing efforts, we hope this handbook will help guide you. Let's innovate together. Enjoy experimenting!

Let's dive in! AMS Institute is located at Marineterrein Living Lab, home to the first official outdoor swimming spot in central Amsterdam. Innovative sensor technology to monitor water quality is one of the solutions tested here.

Chapter 2: Urban Living Labs

Urban Living Labs are collaborative settings where local stakeholders co-create, test, and evaluate innovative solutions in real- life environments to address complex urban challenges, with the goal of scaling or replicating them across the city.

A Need for Systemic Change

Cities like Amsterdam face urgent and deeply interconnected challenges. Building liveable, sustainable, resilient, and inclusive urban environments is not just about launching innovative ideas, it's about transforming the entire urban system. Transitioning to electric transportation, securing sustainable energy, rethinking food systems, and maintaining aging infrastructure are not isolated tasks. They are all pieces of a larger, interconnected puzzle.

Take the example of introducing electric or hydrogen-powered cars. While the technology itself may be available, its success depends on much more than simply putting vehicles on the road. It requires building a network of refuelling stations, gaining public trust in hydrogen's safety and reliability, and aligning regulations to support its use. This is not just about innovation—it is about systemic change.

Illustration 1: Systemic innovation is about interconnected challenges

Systemic change in an urban context means transforming the underlying structures and relationships that shape how a city functions. It requires collaboration across different parts of the system—technology, policy, governance, infrastructure, culture, and community behavior—rather than focusing on a single innovation. For instance, creating a car-free city centre is not just about restricting vehicle access; it demands rethinking public transport, redesigning streets for cycling and walking, adjusting business delivery systems, ensuring accessibility, and shifting public attitudes about mobility.

This contrasts with a traditional innovation approach, which might focus solely on developing a new electric vehicle or a smart traffic management app. While those are valuable, they often address one part of the system rather than transforming the whole urban mobility ecosystem. A systemic innovation approach recognizes that urban challenges are interconnected, and lasting solutions emerge when we work across sectors and disciplines to reshape the systems that produce those challenges in the first place.

Illustration 2: Various stakeholders collaborate in Urban Living Labs

Why Are Urban Challenges Complex?

Urban challenges are difficult to solve because cities are made up of multiple interconnected systems. Changing one element can trigger effects across the entire city. For example, introducing a low-emission zone to reduce air pollution can improve public health but may also increase delivery costs for local businesses, affect traffic patterns in neighbouring districts, and require upgrades to public transport. This makes systemic innovation unpredictable and calls for a different approach to innovation.

Introducing a new urban solution may influence or depend on other elements like available infrastructure, citizens perceptions, relevant regulations, and more. Adjusting one element may influence several others, and vice versa. Therefore, addressing urban challenges is about systemic change, instead of incremental innovation. Incremental innovation is about changing single products or services at a time, while keeping the overall system identical. Systemic change is about reshaping the system itself—requiring a combined shift in technology, behavior, policy, and culture.

This process may be compared to the ripple effects of a waterbed, where pressing one spot might cause shifts elsewhere. Small changes can create unintended ripple effects or dependencies across interconnected systems in the city. For instance, introducing electric vehicles may involve new electricity charging stations, which still can be considered as part of the transport system. However, an increased demand of energy may require completely new underground infrastructure because current electricity lines may not have enough capacity to transport the increased amounts of energy needed. Thus, the ‘transport system’ and the “energy system” are mutually interdependent.

This interconnectedness means that urban challenges require more than isolated solutions. They require coordinated strategies that facilitate systemic transformation. This is where Urban Living Labs (ULLs) come in, offering real-life environments to explore how small interventions may interact with broader urban systems.

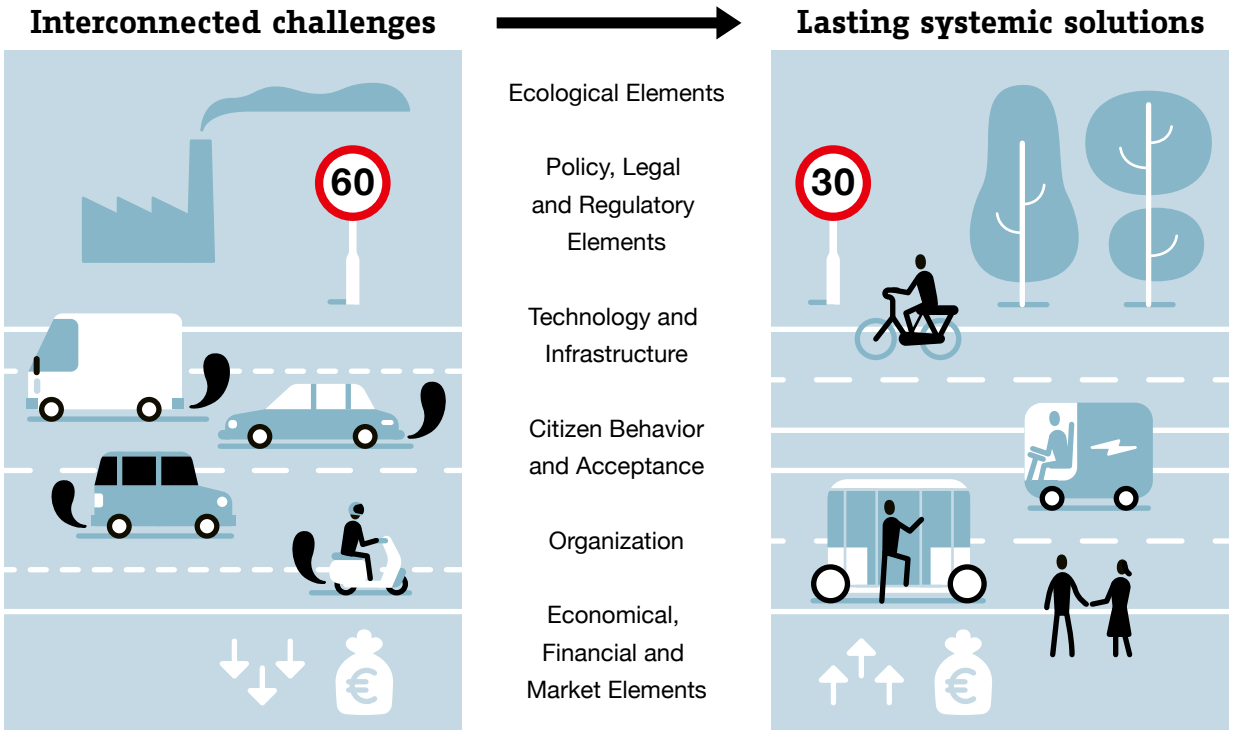
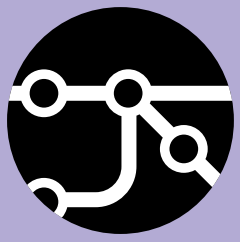


Illustration 3: Transition of an existing system to a new system.

Six Urban Challenges

AMS Institute focusses on six critical and interconnected challenges in mobility, energy, circularity, digitalization, food and climate adaptation to accelerate the development of tangible metropolitan solutions.

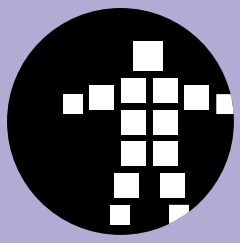


Smart Urban Mobility

The metropolitan area of Amsterdam continues to grow. While it is a positive sign that the city is flourishing, the increase of transport leads to more pressure on urban space and infrastructure. AMS Institute aims to positively impact mobility systems in cities and to contribute to making these systems sustainable, accessible, safe, resilient, inclusive, and affordable.

Urban Energy

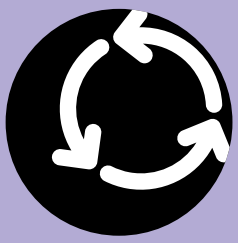
Amsterdam has the ambition to reduce CO2 emission by 55% in 2030 and 95% in 2050. While most supplied energy is still fossil-based and stems from city surroundings, the goal is to transition to more sustainable and local solutions. This requires a major transformation of the current energy systems. How can we ensure the energy use in urban areas will remain reliable, sustainable and affordable?



Responsible Urban Digitalization

Societal concerns about the impact of digitalization on governments and infrastructure are increasing. The Responsible Urban Digitalization program aims to develop smart digital tools and technologies – related but not limited to artificial intelligence, distributed sensor networks, and robotics – that citizens can trust.

Circularity in Urban Regions

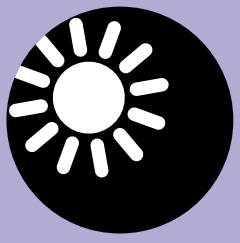


Amsterdam aims to become fully circular by 2050. The Circularity in Urban Regions program supports this transition by redesigning urban activities surrounding production, procurement, use and reuse of material products and infrastructure, as well as planning, governance, and civic engagement of the circular transition.

Metropolitan Food Systems

The complexity of Amsterdam's current food system, which uncouples production and consumption of food, raises concerns about its impact on society and the environment. The Metropolitan Food Systems program works on the creation of inclusive and healthy food systems, both nationally and internationally.

Climate-Resilient Cities



To make Amsterdam and cities worldwide resilient, sustainable and livable, the Climate-Resilient Cities program researches the functioning, adaptation, and resilience of the city in times of climate change. The program focusses on climate adaptation as well as climate resilience.

Benefits of Urban Living Labs

Urban Living Labs (ULLs) offer real-world environments—local neighborhoods, buildings, public spaces—where stakeholders such as municipalities, businesses, researchers, and citizens can work together to develop, test, and scale innovations. What makes ULLs effective is that they combine experimentation with collaboration, helping to address complexity in a practical, hands-on way. Their approach can be summarized in three key strengths:

Rapid Testing and Learning:

ULLs enable fast, iterative testing of ideas in actual urban settings. This allows for novel solutions to be tried, adapted, and refined based on real-world feedback. This process not only speeds up development but also uncovers hidden issues early, helping improve ideas before scaling.

Collaborative Problem-Solving:

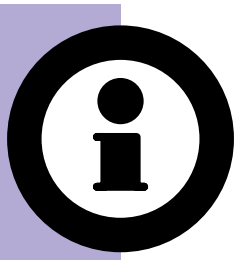
By involving all relevant stakeholders from the start, ULLs ensure that solutions are grounded in reality. This early collaboration aligns new ideas with local, community needs and the city's goals, increasing the chances of success when it becomes time to scale up.

Scaling Lessons Learned:

The combination of co-creation and early testing leads to innovations that are not just promising in theory but have also proven to work in practice. Because local stakeholders are already engaged, scaling and adoption may go faster, turning small experiments into city-wide solutions.

Urban Living Labs are more than test sites; they are platforms for urban transformation. They create a space where cities and partners can learn together, adapt quickly, and move from promising ideas to practical solutions that work at scale. This makes them a vital tool for navigating complexity and driving effective urban change. While there are many different descriptions for the concept of Urban Living Labs, this publication uses this definition:

Urban Living Labs are collaborative settings where local stakeholders co-create, test, and evaluate innovative solutions in real-life environments to address complex urban challenges, with the goal of scaling or replicating them across the city.



Seven Characteristics of Urban Living Labs

Not every urban experiment, co-creation process or collective learning platform qualifies as an Urban Living Lab. What sets ULLs apart is a set of seven characteristics that shape both their process and their impact. They ensure that ULLs do more than test ideas. Together, these characteristics ensure that Urban Living Labs serve as accelerators for both innovation as well as systemic urban transformation towards a more sustainable, inclusive, and resilient city.

Urban Living Labs do more than facilitate experimentation and collaboration—they build a local innovation ecosystem that mobilizes local stakeholders to drive change across the urban landscape. By integrating diverse perspectives into a continuous learning environment, ULLs transform the way cities tackle challenges and spark innovation. Through an organizational structure that facilitates iteration and shared learning, they not only generate tangible innovations but also foster a culture of collaborative problem-solving. Over time, this collaborative spirit can evolve from an experimental approach into the standard practice for addressing a city's most pressing challenges.

The seven unique characteristics of Urban Living Labs we identified are: (I) Focus on Complex Urban Challenges, (II) Systemic Multi-disciplinary Perspective, (III) Interdisciplinary Stakeholder Collaboration, (IV) Real-life Test Environments, (V) Iterative Experimentation, (VI) Open-ended Process and Outcomes, (VII) Collective Learning Process. Below we will briefly explain each of these properties.

Characteristics of Urban Living Labs

I. Focus on Complex Urban Challenges

ULLs tackle complex urban challenges—like energy, mobility, circularity, housing, and infrastructure—by creating sustainable, systemic solutions.

II. Systemic Multi-Disciplinary Perspective

ULLs aim to transform entire urban systems, not just run isolated experiments. By combining insights from multiple innovations, they support better decision-making and drive broader urban transitions.

III. Interdisciplinary Stakeholder Collaboration

ULLs bring together diverse stakeholders. Engaging multiple interests and perspectives ensures that all elements of the future system are taken into account, increasing the chance of successful acceptance and adoption.

IV. Real-Life Test Environments

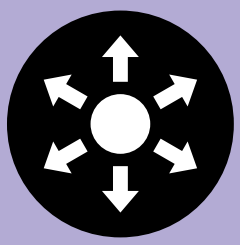
ULL experiments take place in real-life urban environments, like neighborhoods or public spaces, ensuring that innovations are feasible, applicable, and integrated in the urban system.

V. Iterative Experimentation

Innovations are developed through various cycles of planning, action, feedback, and adjustment, ensuring that all elements of the system are aligned.

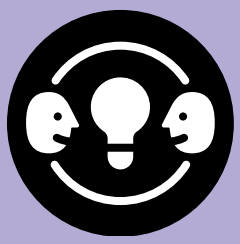
VI. Open-Ended Process and Outcomes

ULLs do not focus on developing a fixed solution. Final outcomes remain flexible, emerging organically through experimentation and co-creation.



VII. Collective Learning Process

ULLs foster a shared learning process. Insights and results are shared, building mutual understanding, trust, and capacity.



I. Focus on Complex Urban Challenges

ULLs address pressing and complex urban issues, for instance related to energy, mobility, circularity, housing, or infrastructure by developing systemic solutions that are environmentally, socially, and economically viable. This results in:

- **Actionable Insights.** Experiments provide real-life feedback that helps translate complex problems into practical strategies for policymakers and researchers.
- **Evidence-based Decisions.** Direct input from experiments enhances evidence-based decision-making.

II. Systemic Multi- Disciplinary Perspective

ULLs are not focused on single isolated experiments but on changing the overall urban system. Combining results of various innovations into an integrated perspective can support informed decision-making and enable broader urban transition processes. As ULLs bring together knowledge from multiple fields to create holistic urban solutions, they support:

- **Cross-pollination of Ideas.** Diverse disciplinary perspectives spark creativity and uncover solutions that siloed approaches often overlook.
- **Researchers Learn from Practice.** The cross-disciplinary environment connects academic theory with urban reality, leading to more grounded and impactful research.

III. Interdisciplinary Stakeholder Collaboration

ULLs involve the contribution of a broad range of stakeholders. Actively engaging different interests and perspectives ensures that all elements of the future system are taken into account, increasing the chance of successful acceptance and adoption. This inclusive approach supports the development of more sustainable and resilient solutions, as it integrates environmental, social, and economic considerations from the start. As ULLs serve as boundary-spanning spaces where stakeholders co-create across sectors, this results in:

- **Unexpected Collaborations.** ULLs connect actors who might otherwise never collaborate, sparking innovative partnerships.
- **Early-Stage Innovation Benefits.** Companies engage at initial stages of development, co-creating solutions through direct interaction across sectors.
- **Cost Efficiency.** Stakeholders sharing knowledge and resources reduces duplication and lowers long-term costs.
- **Citizens are actively engaged.** Citizens move beyond passive consultation to become active partners and even leaders in urban innovation, fostering greater ownership and engagement.

IV. Real-Life Test Environments

ULL experiments take place in a real-life urban environment, like a neighborhood, building, street, or public square. This ensures that innovations are feasible, applicable, and well-integrated into the overall urban system. As ULLs offer opportunities for real-world testing and adaptation, this supports:

- **Early Access to Innovation.** Businesses can test products and services in realistic conditions, accelerating their innovation cycle. They can gain early access to emerging trends, test new solutions, and identify market opportunities.
- **Scalability and Replicability.** Testing in real environments enables experiments to be refined, replicated, and scaled in other contexts.
- **Researchers Learn from Practice.** Proximity to real-world experiments allows researchers to connect scientific theory with real-world practice.
- **Early End-user Involvement.** Bridge the gap between product development and real-world adoption, as users and implementers are involved early in the process.

V. Iterative Experimentation

Innovations are created, tested and refined through repeated cycles of planning, action, feedback, and adjustment. This ensures that all elements of the future system are considered and mutually aligned. Because ULLs use cycles of trial, feedback, and adaptation to improve solutions over time, they support:

- **Continuous Learning.** Iteration supports real-time adjustment and strengthens resilience to emerging challenges.
- **Opportunity for Applied Research.** Iterative experiments allow for reflection and refinement, strengthening research relevance, leading to more applicable and impactful findings.
- **Reduced Risk of Failure.** The iterative real-life approach reduces the risk of policy failure or costly market misalignment, making innovations more robust before broader implementation.

VI. Open-Ended Process and Outcomes

Although participants may have a certain approach in mind, ULLs do not focus on developing a fixed solution. Final outcomes remain flexible, emerging organically through experimentation and co-creation. ULLs embrace emergence, allowing innovation paths and results to evolve dynamically, which enables:

- **Empowered Communities.** Citizens are not just consulted but co-create and influence the outcome, shaping it as it develops.
- **Engaged Citizens.** Engagement goes beyond participation — it enables agency and ownership over urban change.

VII. Collective Learning Process

ULLs foster a shared learning process among stakeholders. Insights and results are shared, building mutual understanding, trust, and capacity, helping to navigate complexity more effectively. Additionally, this process drives the personal and professional development of participants. As ULLs are learning ecosystems that create shared understanding and capacity among diverse actors, they support:

- **Collective Learning.** All participants gain experience and insight, enabling more adaptive governance and continuous improvement.
- **Enhanced Trust and Inclusion.** Learning together builds stronger social cohesion and legitimacy in the innovation process.
- **Increased Efficiency.** Re-using and recombining existing knowledge, expertise, and technologies enhances innovation efficiency and avoids duplication.

Challenges Related to Urban Living Labs

While the concept of Urban Living Labs (ULLs) might seem straightforward, putting it into practice can be complex. Although the characteristics in the previous section indicate what defines a ULL, they do not explain how to design and run one effectively. Practitioners frequently ask: “Where do we begin? What steps should we take? What is our role? How can we align diverse stakeholders with competing interests? How do we scale up experiments?”

Urban Living Lab coordinators face several challenges, with the most common outlined in this section. These are often interdependent, with one challenge amplifying another. As in all other projects, limited time, budget, and available expertise can make it challenging to effectively manage the complexity of innovation processes in ULLs. Other key challenges are related to labs’ unique characteristics.

I. Focus and Scope

↳ **Lack of a Shared Understanding.** Urban Living Labs are interpreted in different ways by different actors — as spaces, methods, or processes. This lack of a common definition can create confusion around goals, roles, and outcomes, making coordination and collaboration difficult.

↳ **Shifting or Conflicting Problem Definitions.** In dynamic urban environments, the 'problem' can shift as new information emerges or as political priorities change. Stakeholders may not agree on what the actual challenge is, leading to fragmented experimentation or loss of direction.

II. Systemic, Multi-disciplinary Perspective

↳ **Disciplinary Silos and Language Barriers.** Different disciplines (e.g. design, engineering, sociology) often use different jargon and methods. Without deliberate boundary work, misunderstandings arise, and integration suffers.

↳ **Lack of Systems Thinking Skills.** Not all participants are trained to think in terms of systems or complexity. Without that mindset, solutions may remain narrow or superficial, undermining transformative ambitions.

III. Interdisciplinary Stakeholder Cooperation

↳ **Unclear Roles and Responsibilities.** In multi-stakeholder settings, work packages or responsibilities are often vague or overly abstract. This leads to uncertainty, slow decision-making, and inefficient collaboration among partners.

↳ **Power Asymmetries.** Some voices (e.g. institutions or funders) dominate over others (e.g. community members or SMEs), even in participatory settings. This undermines co-creation and can erode trust.

↳ **Stakeholder Fatigue.** Continuous involvement without clear progress, recognition, or compensation may lead to disengagement — especially among citizens and community partners.

IV. Real-life Test Environments

↳ **Disruption to Daily Life.** Real-life testing can affect neighborhood routines or generate resistance (e.g. construction noise, reduced parking, unclear goals). Public support can quickly erode without clear communication and feedback loops.

V. Iterative Experimentation

↳ **Tension with Traditional Project Management.** ULLs require flexibility, iteration, and openness — qualities that often clash with conventional project management, which demands fixed timelines, deliverables, and roles. Many organizations struggle to adapt to this more fluid way of working.

↳ **Lack of Time or Flexibility for Iteration.** Funders and institutions often expect quick results. This creates pressure to deliver rather than explore, limiting the ability to test, fail, and adapt over time.

VI. Open-Ended Process and Outcomes

↳ **Limited Long-term Engagement and Commitment.** Sustaining involvement over time is difficult due to time constraints, staff turnover, or scepticism toward experimental approaches. This threatens continuity, especially when efforts rely on voluntary participation or informal structures.

↳ **Managing Expectations.** Not all stakeholders are comfortable with uncertain outcomes. Without clear framing, open-endedness can be mistaken for disorganization or a lack of commitment to results.

VII. Collective Learning Process

↳ **Insufficient Time for Reflection.** Intense project schedules often leave no time for proper reflection or documentation of learning. Without structured moments for knowledge exchange, valuable lessons may be lost.

↳ **Lack of Institutional Memory.** Learning often stays with individuals. When those individuals leave, the knowledge and relationships leave with them — unless learning is formalized in structures, tools, or practices.

Chapter 3: A Multilevel Framework

Experimentation, learning, and urban change interact across three interconnected systemic levels.

Three Interconnected System Levels

To help practitioners navigate the complexity of Urban Living Labs (ULLs), we developed the ULL Multilevel Framework (Illustration 5). This framework is inspired by (Geels, 2002) and shows how experimentation, learning, and urban change interact across three interconnected systemic levels. The top level represents the network of *Stakeholders* that are part of the *Urban Innovation Ecosystem*. The middle level represents the various *Urban Living Labs*, which together are part of the *Collaborative Platform*. And the bottom level, representing the concrete *Experiments* that take place in a *Real-Life Environment*. This multilevel perspective emphasizes that ULLs are part of a collaborative platform, forming a connection between small-scale real-life experiments on the one hand, and sustainable transitions of the urban innovation ecosystem on the other. The ULL Multilevel Framework visualizes Urban Living Labs as operating across three interconnected system levels.

Innovation Ecosystem and Stakeholders

The top level represents the broader network of stakeholders working together to address an urgent and complex urban challenge. This level is related to long-term city goals, innovation strategies, and relevant policies. For example, in Amsterdam's energy transition, this includes the municipality, energy providers, housing corporations, and citizen groups working together to achieve the city's goal of becoming natural gas-free by 2040 and carbon-neutral by 2050. This level highlights the key players needed to turn experimental solutions into viable, scalable change across the wider city, region, or country.

Collaborative Platform and Living Labs

The middle level acts as the organizational backbone of one or more ULLs. It connects strategic goals with on-the-ground experimentation by coordinating efforts, facilitating learning between various ULLs, and ensuring that results from experiments are shared across the ecosystem. In a ULL focused on sustainable heat solutions, for example, this level might organize knowledge-sharing between experiments in different neighborhoods and ensure that insights feed into municipal energy policies.

Real-Life Environment and Experiments

The bottom level is the place where innovations are developed and tested in real-life locations such as streets, buildings, or neighborhoods. At this level, the solutions are co-created and tested in urban settings. For example, testing new cooling pavements on a

Collaborative Platform

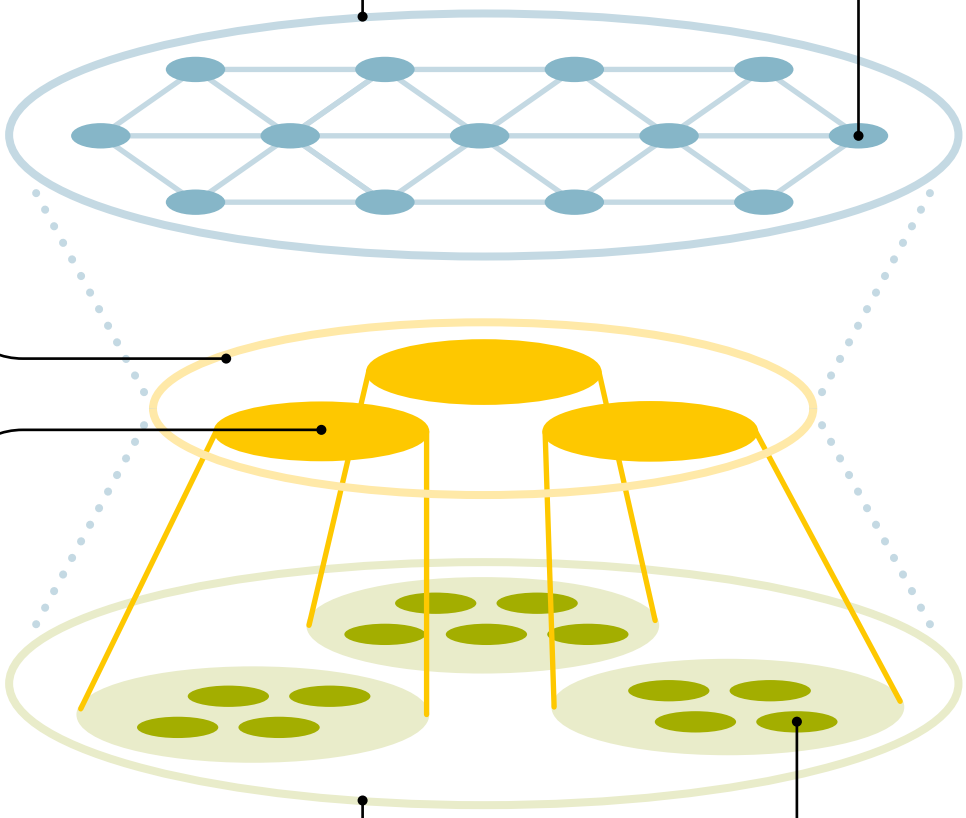
An organizational structure that connects stakeholders across disciplines, enabling knowledge sharing, experimentation, collective learning, and scaling of urban innovations.

Innovation Ecosystem

A network of interconnected stakeholders who influence and contribute to urban transition processes through their individual and collective actions.

Stakeholders

Individuals, groups, organizations, policymakers, businesses, researchers, and citizens involved in or affected by an urban transition process.



Urban Living Labs

Collaborative settings where local stakeholders co-create, test and evaluate innovative solutions in real-life environments, to address complex urban challenges, with the goal of scaling or replicating them across the city.

Real-Life Environment

A physical or virtual environment (e.g. a street, building, or digital platform) where innovative ideas and solutions are tested and developed under real-world urban conditions.

Experiment

A structured activity designed to develop and validate new ideas, accelerating learning and generating insights through real-world testing and experience-based learning.

Illustration 4: Urban Living Lab Multilevel Framework

heat-prone city square, or testing smart sensors on a bridge to monitor structural health. Experiments at this level can be geographically clustered (e.g. multiple trials in the same street) or grouped thematically (e.g. various experiments exploring renewable energy solutions across the city).

The ULL Multilevel Framework in Practice

The ULL Multilevel Framework is a tool for mapping, structuring, and guiding ULLs. It helps practitioners clarify how strategic ambitions, collaborative processes, and local experiments interact to drive urban transitions. The framework can support practitioners in structuring, planning, and visualizing their ULL activities. It can help to align goals, streamline collaboration across stakeholders, and evaluate progress over time.

The examples on the following pages illustrate how the framework can be applied. They demonstrate how the three interconnected levels (the Innovation Ecosystem, the Collaborative Platform, and the Real-Life Environment) help shape Urban Living Labs in different contexts. The first context is Energy Lab Zuidoost, the second is the ATELIER European Network, and the third is the Marineterrein Amsterdam.

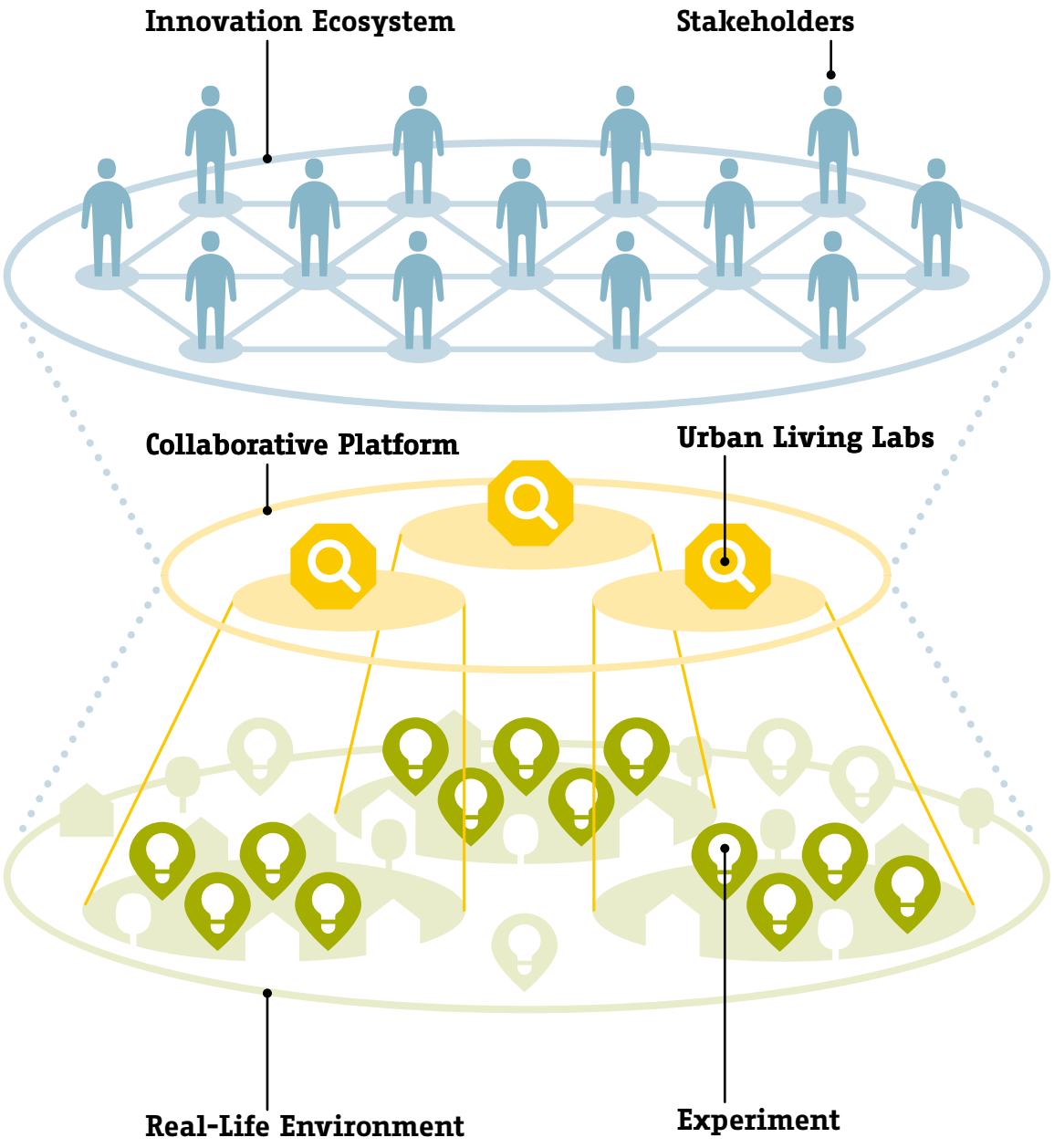
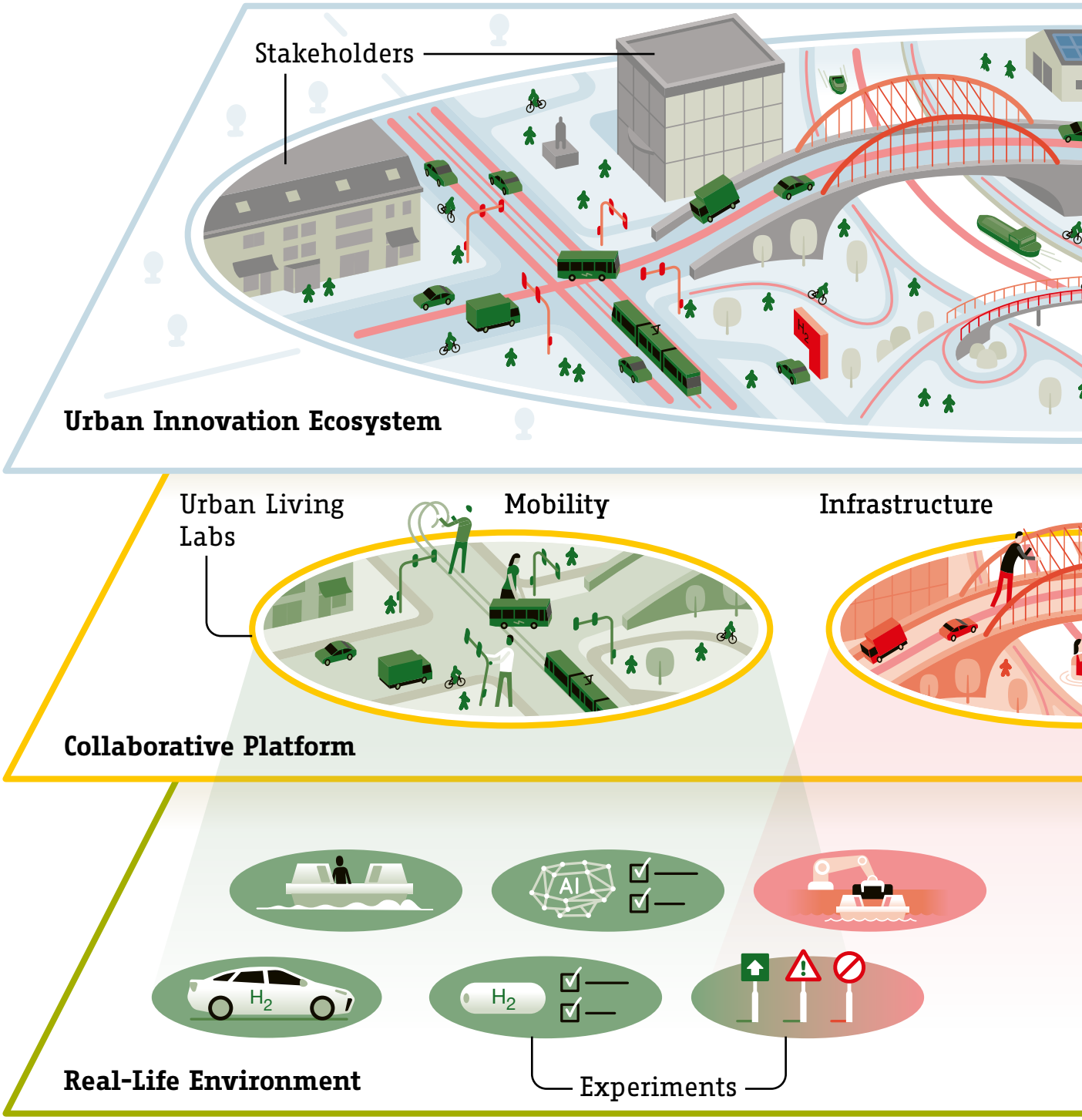


Illustration 5: Urban Living Lab Multilevel Framework


Stakeholders
Urban Innovation Ecosystem
Urban Living Labs
Mobility
Infrastructure
Collaborative Platform
AI
H2
H2
Real-Life Environment
Experiments

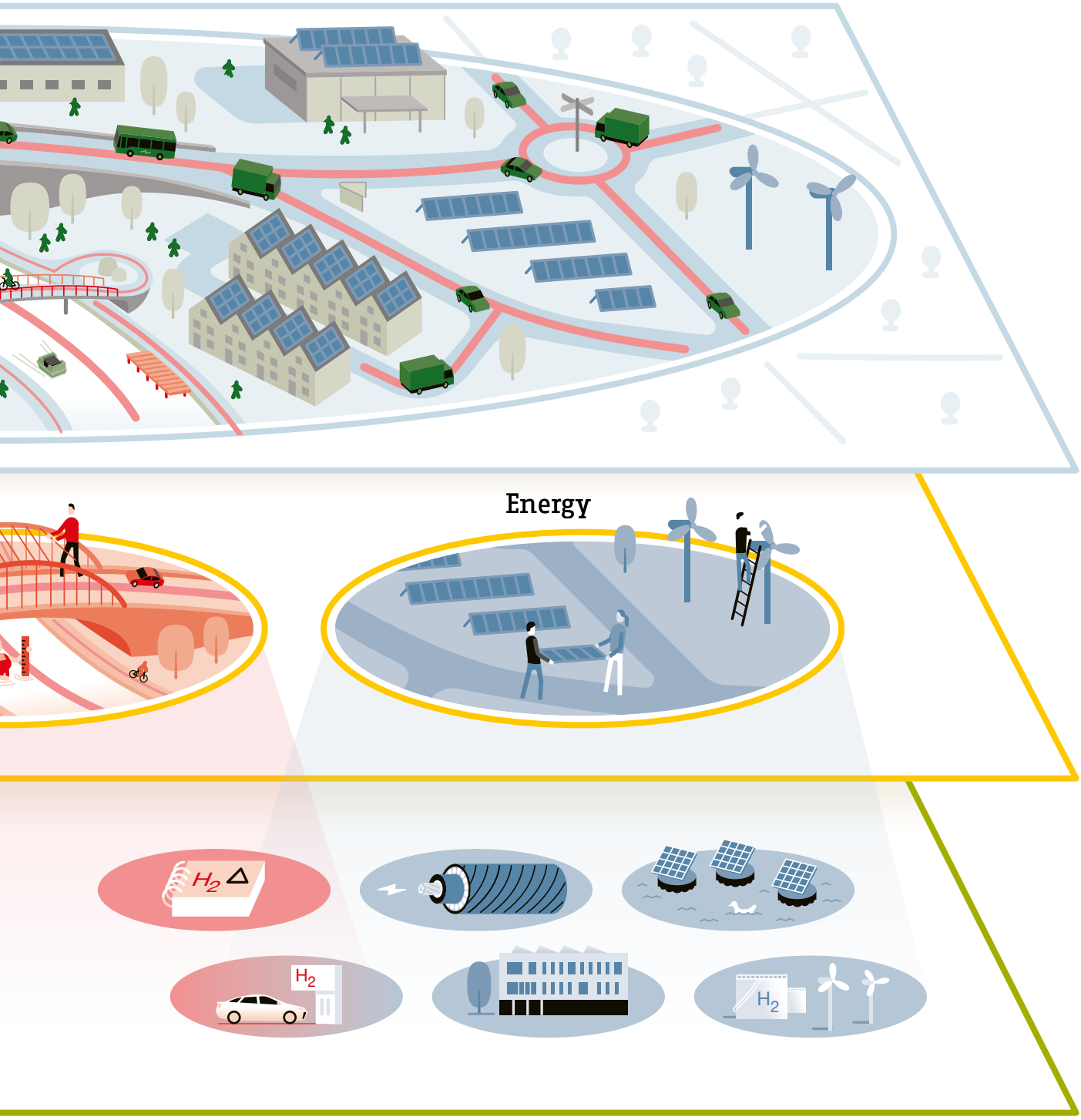


Illustration 6: Thematic Living Labs and related experiments.

Case Example 1: Energy Lab Zuidoost Amsterdam

Accelerating the Energy Transition in Amsterdam Zuidoost

Working towards an energy-neutral district by 2040, this Urban Living Lab connects local residents, companies, knowledge institutions, and government to develop and scale sustainable energy solutions that are affordable and just. Experiments in smart local electricity systems, sustainable construction, and heat networks are tested across multiple neighborhoods, while the Energy Lab Platform coordinates knowledge exchange and links results to city-wide energy policies.

Stakeholders and Urban Innovation Ecosystem

Energy Lab Zuidoost is focussed on the energy transition in the Southeast area of Amsterdam, a district known for its large employers like the AMC Hospital, and large event centres like the Johan Cruijff Arena and Ziggo Dome, alongside a vibrant and culturally diverse population. Various stakeholders like the Municipality of Amsterdam, several academic institutions (Delft University of Technology, Amsterdam University of Applied Sciences, University of Amsterdam) local businesses, housing corporations, and citizen initiatives together aim to accelerate the shift toward an energy-neutral district by 2040, while ensuring that solutions are both sustainable and socially just for all its residents. Central to their approach is co-creation with residents, addressing energy poverty and building trust through inclusive innovation.

Urban Living Labs and Collaborative Platform

At the core of Energy Lab Zuidoost is a coordinating platform that serves as a knowledge hub and connector, bridging city-wide ambitions with neighborhood-level experiments. This platform supports the Living Labs in three key ways:

- Translating strategic goals into action by aligning the vision of an energy-neutral and socially just neighborhood with practical experiments;
- Facilitating knowledge exchange and collaboration through weekly workshops to address research progress and local challenges, 6-weekly in-depth workshops for cross-lab learning, and an annual seminar to reflect on results and ensure alignment with city policies.
- Initiating new labs and partnerships by identifying emerging challenges and launching new experimental projects as the energy transition evolves.

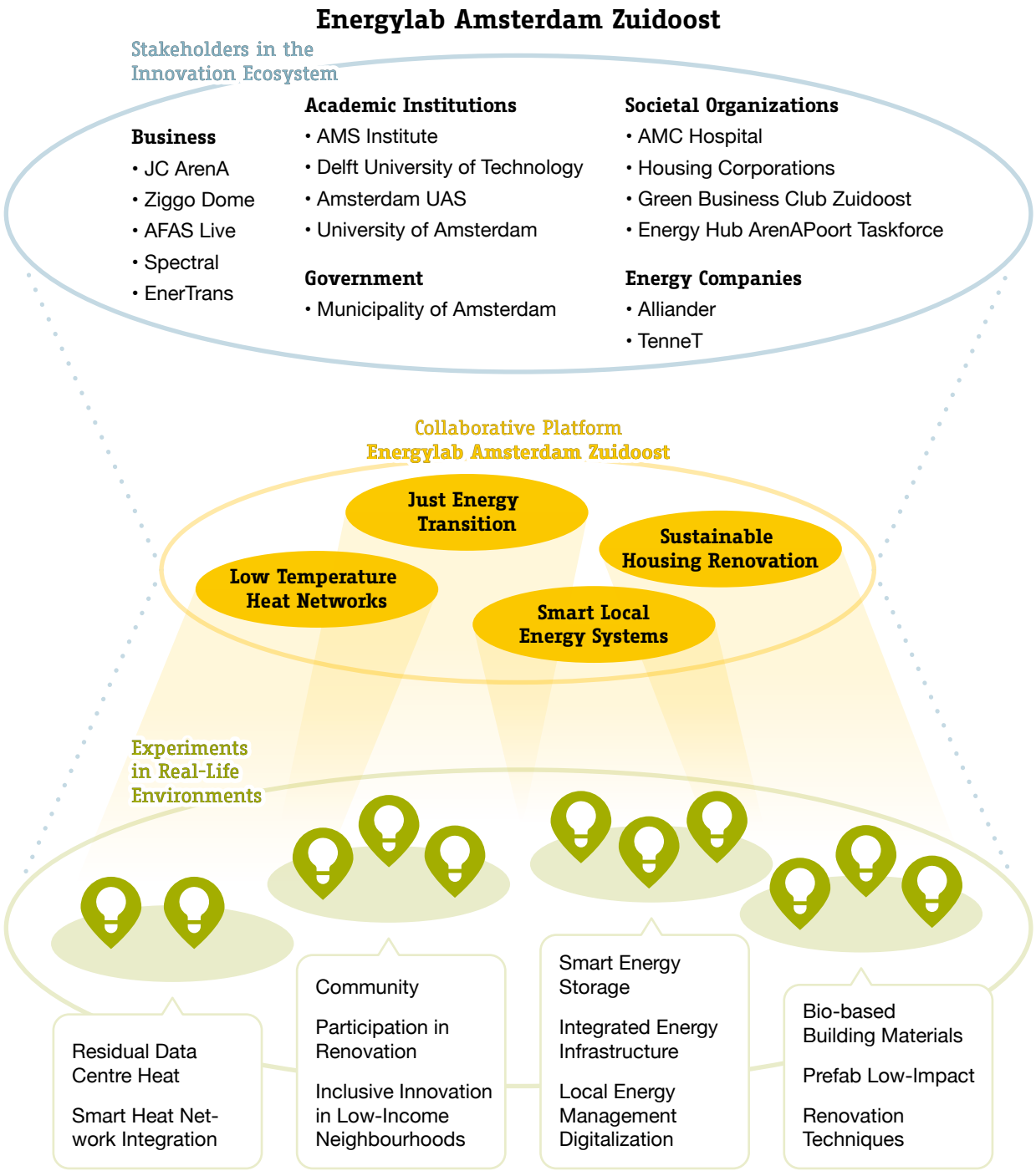


Illustration 7: Energy Lab Zuidoost Multilevel Framework

The Energy Lab Zuidoost organizes its activities through four thematic Urban Living Labs, each focusing on a specific energy challenge and rooted in a specific district neighborhood:

- Smart Local Electricity Systems
- Sustainable Housing Renovation
- Low Temperature Heat Networks
- Just Energy Transition

Experiments and Real-Life Environment

Each of the thematic Living Labs functions as an experimentation space, where citizens, businesses, and researchers collaborate to test and refine energy innovations in real-world settings.

- Smart Local Electricity Systems. Developing and testing a neighborhood energy platform to tackle grid congestion and support electrification as part of the LIFE ArenAPoort project.
- Sustainable Housing Renovation: Exploring bio-based, prefabricated, and low-impact renovation techniques to enhance housing affordability and sustainability as part of the Demohouse Reigersbos initiative.
- Low Temperature Heat Networks: Researching attempts to implement low-temperature heat networks using residual heat from data centers to provide clean and affordable heating.
- Just Energy Transition. Engaging residents in vulnerable neighborhoods to address energy poverty, improve housing, and ensure an inclusive transition as linked to the JUST Prepare project and the K-Torens renovation initiative.

Reference:

You can find out more on the website of the Energy Lab Zuidoost: www.energielabzuidoost.nl

Case Example 2: ATELIER European Network

Co-creating Positive Energy Districts in European Cities

ATELIER is an EU-funded initiative uniting eight cities, including Amsterdam and Bilbao, to create Positive Energy Districts. Local *Innovation Ateliers* bring together municipal actors, businesses, and citizens to co-develop energy solutions. The platform facilitates knowledge transfer across cities and embeds results into European policy frameworks.

Stakeholders and Innovation Ecosystem

The ATELIER project is a transnational initiative, funded by the EU Horizon 2020 programme, focused on developing Positive Energy Districts. ATELIER brings together eight European cities to co-develop and demonstrate innovative energy solutions that enable districts to produce more energy than they consume. By combining technological innovation with citizen engagement, the initiative aims to create carbon-neutral, inclusive, and liveable urban areas.

ATELIER includes two Lighthouse Cities—Amsterdam (Netherlands) and Bilbao (Spain)—which act as frontrunners in developing and testing Positive Energy Districts. These cities serve as real-life demonstration sites, pioneering solutions that can be adapted elsewhere. Six Fellow Cities—Bratislava (Slovakia), Budapest (Hungary), Copenhagen (Denmark), Krakow (Poland), Matosinhos (Portugal), and Riga (Latvia)—learn from these demonstrations and tailor solutions to their own local contexts.

Beyond the cities, the consortium consists of a diverse network of partners, including municipalities, technology providers, universities, energy companies, housing associations, and citizen groups. Together, they share the ambition of accelerating the transition to climate-neutral cities by 2050. Through scalable solutions integrating renewable energy, smart grids, and citizen participation, ATELIER fosters a co-creation approach that empowers residents to shape the future of their neighborhoods.

Living Labs and Collaborative Platform

At the core of ATELIER is a European knowledge and coordination platform that connects the eight cities and their local Innovation Ateliers. This platform plays a crucial role in aligning local actions with European climate goals. Each city is supported in developing its own Positive Energy District strategy, contributing to the EU's objective of climate neutrality by 2050.

The collaborative platform fosters cross-city learning and replication through annual consortium meetings, where all partners evaluate progress and exchange best practices. Peer-to-peer workshops enable cities to learn from each other's experiences. Thematic

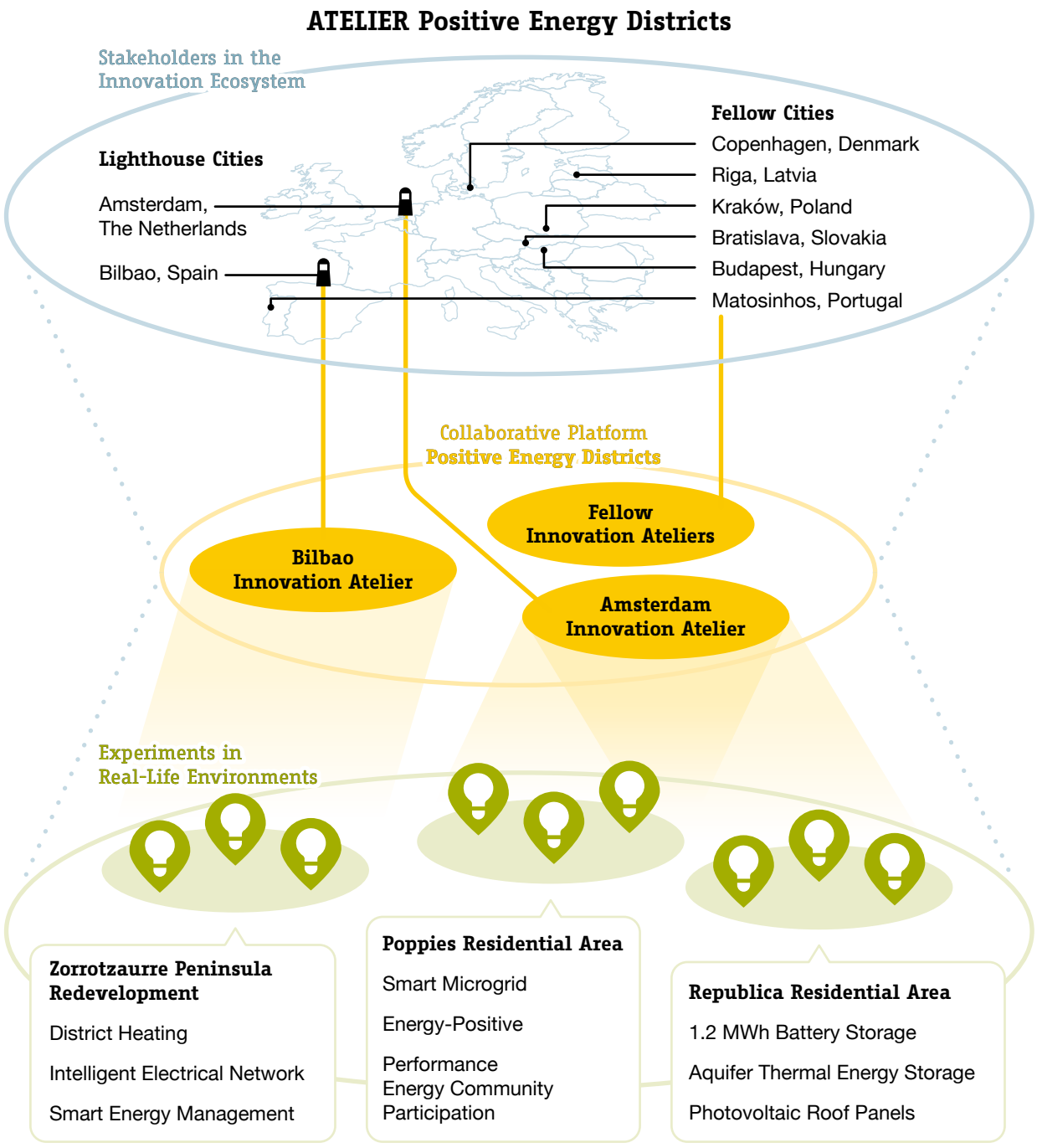


Illustration 8: Atelier Multilevel Framework

working groups address cross-cutting issues such as financing, citizen engagement, and governance. Additionally, the platform supports local co-creation processes by providing guidance, tools, and capacity-building to help local Innovation Ateliers facilitate citizen-driven experimentation.

Each participating city hosts its own local Innovation Atelier, serving as an Urban Living Lab to test and develop positive energy innovations in real-life settings.

Experiments and Real-Life Environment

The experiments in the Amsterdam Innovation Atelier take place in the Buiksloterham neighborhood and the NDSM former shipyard area. Here, the focus is on developing a Positive Energy District that integrates local renewable energy production, energy storage, and smart energy management systems in two projects called Republica and Poppies Residential Area.

The Bilbao Innovation Atelier, located on the Zorrotzaurre peninsula, is transforming a former industrial zone into a carbon-neutral urban district. Key innovations include energy-positive buildings, heat networks, and e-mobility solutions.

Each of the six Fellow Cities builds on the lessons learned from the Lighthouse Cities, adapting experiments to their specific local needs. Areas of focus typically include energy retrofitting, district heating optimization, and citizen-led co-design processes.

Case Example 3: Marineterrein Living Lab

Experimenting with the Future of Urban Living

Situated in a temporarily available inner-city area, the Marineterrein Living Lab facilitates testing urban innovations to future-proof the city. Startups, students, and residents collaborate on experiments ranging from smart mobility to water quality monitoring. The Marineterrein platform fosters openness and citizen involvement, while connecting insights to Amsterdam's innovation strategy.

Illustration 11: Marineterrein Living Lab framework

Stakeholders and Innovation Ecosystem

The Marineterrein Living Lab is situated on a former naval site, an area that is being transformed into an experimental urban district where businesses, knowledge institutions, and citizens collaborate to develop and test new approaches to urban challenges such as sustainable mobility, circular construction, smart public spaces, and climate adaptation. The area serves as an open innovation environment, aiming to create a resilient, healthy, and inclusive city for all.

The Marineterrein initiative is driven by a network of partners, including the Municipality of Amsterdam, Bureau Marineterrein Amsterdam, several knowledge institutions such as the AMS Institute and various universities, as well as citizen initiatives and local communities. Together, they share the ambition of creating an adaptive, future-oriented district through experimentation and co-creation. Residents and visitors play an active role, as their daily experiences contribute to shaping and refining the solutions being tested. A sign at the entrance encapsulates this unique approach, stating: ‘At Marineterrein, you are always part of an experiment.’

Living Labs and Collaborative Platform

At the heart of the Marineterrein Living Lab, a coordinating platform managed by Bureau Marineterrein Amsterdam facilitates, connects, and monitors the diverse experiments. This platform plays a key role in aligning experiments with the strategic vision, ensuring all projects contribute to the overarching goal of creating a livable and resilient urban future. It enables cross-experiment collaboration by organizing regular knowledge-sharing events, community dialogues, and cross-disciplinary workshops where project teams and residents exchange insights and refine their approaches.

The Marineterrein is open to the public, providing open access for residents and partners, allowing citizens to experience and engage with ongoing experiments—turning everyday users into real-life test participants. Additionally, the platform is responsible for monitoring and evaluation, collecting real-time data from urban sensors and conducting on-site evaluations to measure the impact of interventions on both the environment and urban life.

Illustration 9: Marineterrein Multilevel Framework

The Marineterrein Living Lab functions as a flexible test site with a focus on various urban themes:

↳ Circularity and Sustainability
↳ Urban Greening & Biodiversity
↳ Water & Climate Resilience
↳ Mobility & Public Space
↳ Data & Ethics

Experiments and Real-Life Environment

Experiments in circularity and sustainability include the Dropper, a self-service recycling station in an upcycled shipping container; the Waste-Based Biobased Plastic project, which creates biodegradable composites to replace plastics; and the Innovation Pavilion, a test site for building with bio-based materials.

Urban greening and biodiversity efforts feature Informal Green Spaces—unmanaged land that fosters spontaneous ecology; the Local Color Garden, which turns a parking lot into a dye garden; and Respyre, using moss-covered facades to improve air and reduce heat.

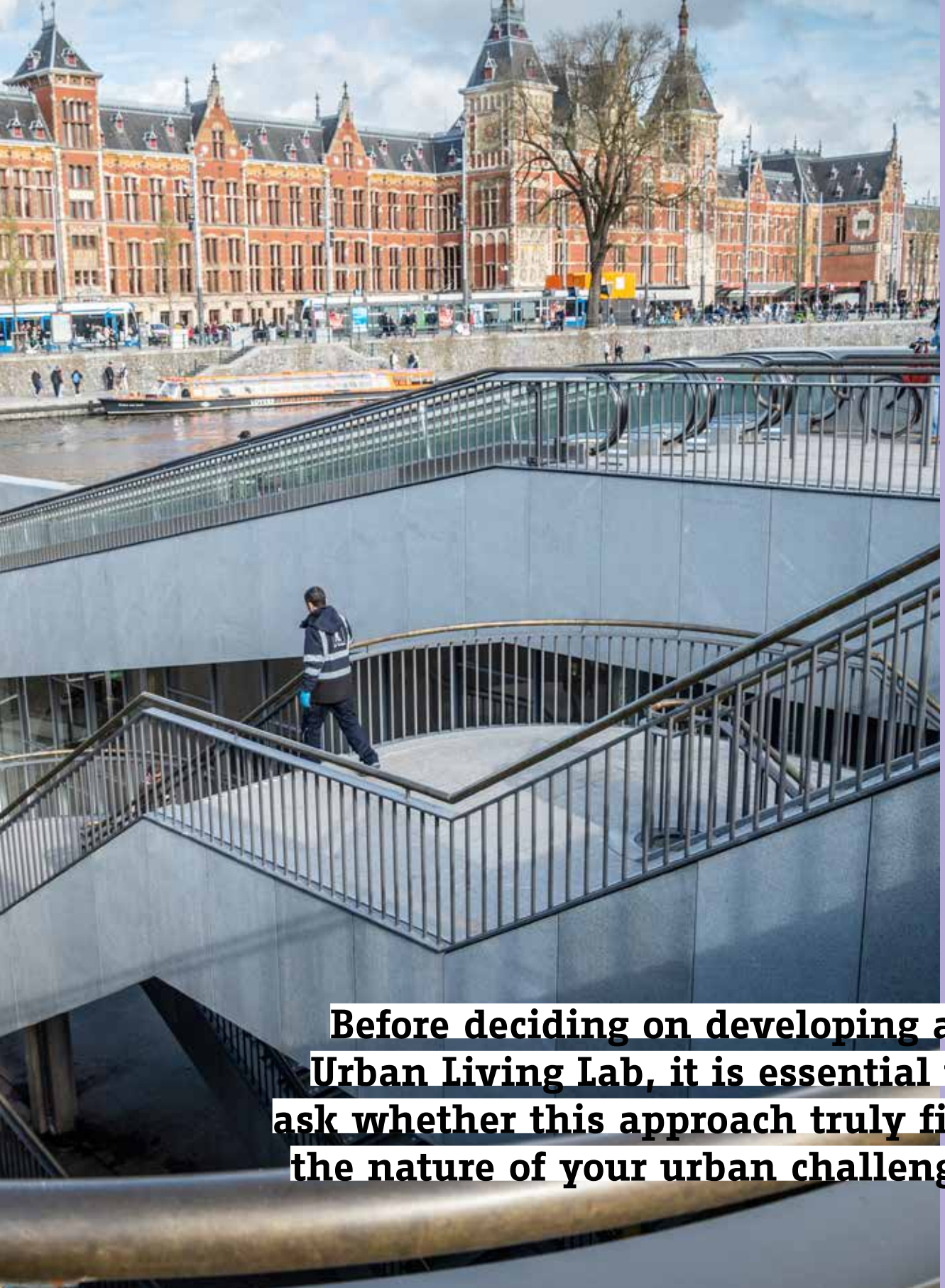
Water and climate resilience projects include Green Holistic System, with green roofs for water retention and biodiversity; AquaConnect, which purifies sewer water; and BACTcontrol, a sensor for fast E. coli detection in harbor water.

In mobility and public space, Buurthub 2.0 explores sustainable e-bike charging; Organic Crowd Control guides movement with flower strips; and Crowd Monitor tracks density to manage space.

Data and ethics projects include the Responsible Sensing Lab's Shuttercam, signaling when recording, and Public Eye, an AI tool that anonymously monitors crowd size.


Hier wordt gewerkt aan de toekomst van de stad
Door samen te werken en te experimenteren met een collectief van organisaties en kennisinstellingen, onderzoeken we hier hoe de stad zich het beste kan aanpassen aan de snel veranderende wereld.
Op zoek naar een organisatie op het terrein?
Je vindt een interactieve plattegrond op de digitale schermen bij de ingangen van het terrein (i) of je kan de QR code scannen om de plattegrond op je telefoon te openen.
Welkom op het Marineterrein
Huisregels
Respecteer de omgeving
Parkeren van auto's alleen voor vergunninghouders
Honden aan de lijn, behalve op het Heliveld
Parkeer fietsen in een rek
Geen barbecues of versterkte muziek
Laat niets achter
www.marineterrein.nl

Chapter 4: Before You Start your Urban Living Lab



Before deciding on developing an Urban Living Lab, it is essential to ask whether this approach truly fits the nature of your urban challenge.

Is an Urban Living Lab the best way to go?

Before deciding on developing an Urban Living Lab (ULL), it is essential to ask whether this approach truly fits the nature of your urban challenge. ULLs offer great potential for innovation through collaboration, experimentation, and learning in real-life settings. However, they are also complex, resource-intensive, and require long-term commitment from diverse stakeholders. In many cases, other methods may be more appropriate or effective. Choosing the ULL route should therefore be a conscious decision—based on the characteristics of the problem at hand, the actors involved, and the ambition for systemic change.

ULLs offer significant advantages for tackling complex urban challenges. By fostering interdisciplinary collaboration and real-life experimentation, they support innovative, context-sensitive, and more sustainable solutions. ULLs enable continuous learning, active stakeholder engagement, and the potential to scale or replicate successful innovations.

However, they also present many challenges: coordination can be complex, roles can be unclear, and outcomes are often uncertain. Their iterative and open-ended nature may clash with traditional project structures, while sustaining long-term engagement and managing expectations requires dedicated effort and resources.

Alternative Innovation and Experimentation Approaches

Urban Living Labs are part of a broader family of experimental approaches, each with its own focus and structure. Depending on the nature of the challenge, other formats may be more suitable. Without going into detailed definitions, there are various related concepts. Next to Urban Living Labs, many terms circulate for open, real-life laboratories, such as: Living Labs, Fieldlabs, Social Innovation Labs, Testlabs, Fablabs, Transition Arena's, and Festival Labs, to name just a few. Also, some learning environments which are experienced as experimental, but do not co-create, test and validate innovations such as Communities of Practice and Hybrid Learning Communities sometimes call themselves labs.

Experimental approaches can be compared along various dimensions, such as the degree of co-creation involved or the level of freedom they offer. For instance, a scientific Research Laboratory typically represents a fully controlled setting with no co-creation. A Field Lab introduces some collaboration while retaining a high level of control. In contrast, an Urban Living Lab operates in a semi-controlled environment with a strong emphasis on co-creation among stakeholders. At the far end of the spectrum lies the regular urban environment—an uncontrolled, open context where stakeholders act with complete autonomy.

This progression can be visualized as a continuum (see illustration 10), ranging from highly structured and researcher-driven settings to open, participatory environments with minimal external control. The key question is how much freedom and how much structure is needed in a given context. Too much direction can be overly restrictive. Yet total freedom may resemble an orchestra without a conductor, or a theater play without a director. For each project, the right balance must be found—one that fits its goals, context, and stakeholders.

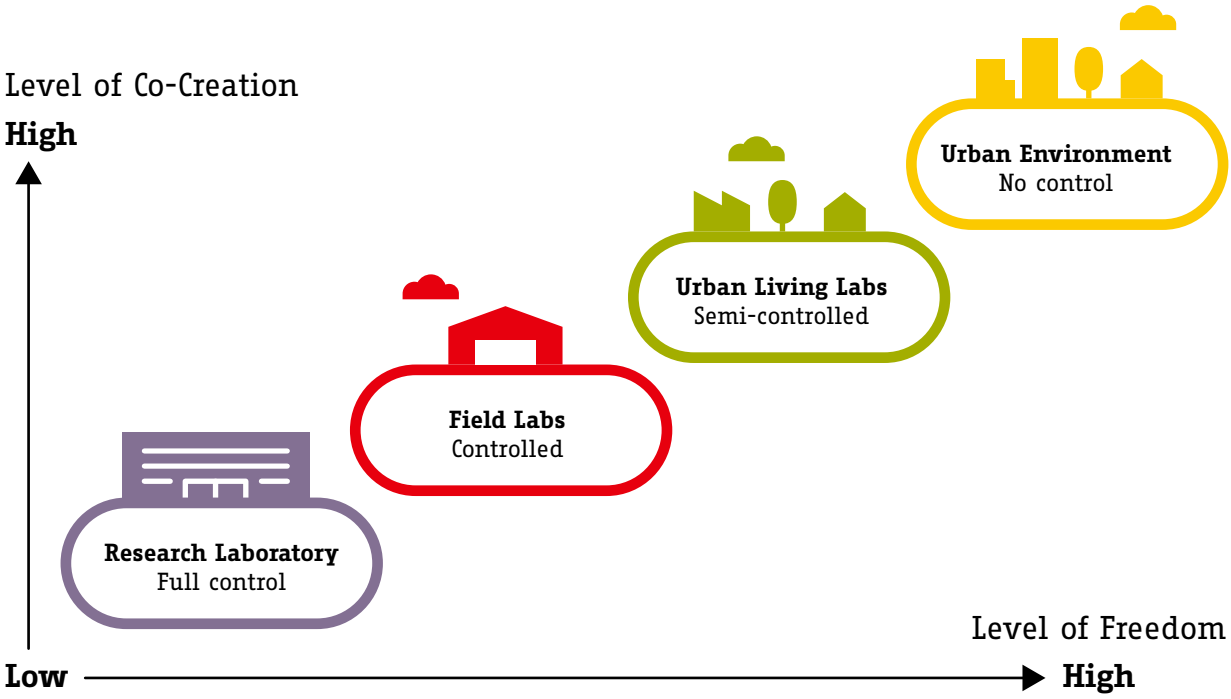


Illustration 10: Alternative Innovation and Experimentation Approaches

Selecting the Appropriate Approach

A ULL can be inspired by both a problem and a solution. It can be initiated to find solutions to a pressing urban challenge (e.g. flooding neighborhoods) or an emerging opportunity (e.g. new energy-saving technology). Whichever starting point, start by asking whether it needs a collaborative effort to address or implement it. Does it require co-creation and experimentation, or is it more straightforward, needing a simpler approach? To determine if a ULL is the best fit for your project, you can start by discussing these questions:

1. Is your challenge linked to a complex urban issue?

Start by assessing the complexity, urgency, and scale of the problem. Is it a clearly defined technical issue, or a broader systemic challenge requiring social, institutional, and behavioral change? Is it situated within a dynamic urban context that demands more than a purely technical solution? Does the challenge align with the local context and current policy priorities?

2. Does the challenge require a systemic and multidisciplinary perspective?

Consider whether it is necessary to draw on insights from various disciplines to fully understand and address the challenge. Does the issue involve multiple, interdependent dimensions—such as social, environmental, and institutional factors? If not, a more straightforward approach, such as a conventional innovation project, might be more appropriate. A living lab is particularly suitable when facing a critical, urgent, and complex urban problem that cannot be resolved by a single actor or discipline, and where the outcome is uncertain.

3. Is broad collaboration across sectors and stakeholders essential?

Does the challenge require the involvement of multiple actors—such as policymakers, citizens, businesses, and researchers—to co-create effective solutions? Are their perspectives interdependent for success? If broad stakeholder engagement and co-creation are essential, an Urban Living Lab may be an appropriate approach. For more technical or product-focused goals, a Test Lab, or Pilot Experiment may be more suitable. Effective collaboration across disciplines and sectors is key to integrating diverse viewpoints and building broad support. Stakeholder buy-in and local value

creation are critical. Co-creation processes should align with the needs and agendas of all involved, fostering shared ownership and increasing the likelihood of long-term adoption.

4. Does the innovation need to be tested and developed in a real-world urban setting?

Is it important to experiment in a specific urban location where the solution can be tested and refined under actual conditions? Will real-life complexity influence the design, implementation, or success of the innovation? Consider whether the goal is to validate and de-risk a product or policy in practice (e.g. Field Lab, Sandbox, Demonstration Project), or to generate new insights, build capacity, and support long-term transitions (e.g. Urban Living Lab, Transition Arena).

5. Is an iterative, trial-and-error approach appropriate or necessary?

Does the challenge require a process of testing, learning, adjusting, and re-testing in multiple cycles? Is there flexibility to adapt solutions as new insights emerge over time? Consider the available timeframe and resources—Urban Living Labs and similar open-ended approaches demand significant time, coordination, and sustained engagement. If rapid results or proof of concept are required within a limited timeframe, more focused formats such as a Pilot Experiment or Demonstration Project may be more suitable.

6. What balance is needed between control and openness?

Should the project allow for emergence and adaptation, or does it require a fixed, pre-defined pathway? Consider whether the experiment needs a controlled setting—such as a Test Lab or Sandbox—or whether it should unfold in an open, dynamic urban environment—such as an Urban Living Lab or Real-World Lab. Also reflect on the nature of the desired outcomes: should they be open-ended and exploratory, or clearly defined from the outset? Urban Living Labs are most suitable when an open, co-creative approach is needed, allowing for iterative feedback loops and real-world testing to shape and evolve solutions in response to changing conditions.

7. Is shared learning and knowledge-building a primary objective?

Is the goal to foster mutual understanding, build trust among stakeholders, and generate knowledge that can benefit others—such as cities, institutions, or future initiatives? If learning, replication, and knowledge-sharing are central aims, Urban Living Labs are particularly well-suited due to their iterative, reflective, and participatory nature. These settings prioritize the documentation and dissemination of insights, helping to inform urban policy and decision-making while enabling others to learn from your experience.

If you answered positively to most of these questions, an Urban Living Lab or similar open, collaborative format may be the best fit. If not, a simpler, more controlled alternative may be more suitable.

Reflective Questions

- ↳ *What are the advantages and disadvantages of developing an Urban Living Lab?*
- ↳ *Is an Urban Living Lab suitable for the complexity of the challenge?*
- ↳ *What alternative approaches could we apply?*
- ↳ *Are all relevant stakeholders actively engaged, and do they have a shared understanding of the ULL's objectives?*
- ↳ *Does the ULL approach fit the local context and available resources?*

Chapter 5: Urban Living Lab Way of Working

Eight Key Activities combine a top-down and bottom-up approach in a continous adaptive cycle.

Introduction

If you have decided that developing an Urban Living Lab (ULL) is indeed the best way to go, the next question is how to start the process, how to manage it during the development and operation, and at a certain moment, how to finish it again. To guide this process effectively, organizers of ULLs can benefit from a structured yet adaptive approach. To support this process, this chapter introduces eight key activities that form the foundation of the Urban Living Lab Way of Working (ULLWOW). These activities are not fixed steps, but interconnected actions that can be revisited and refined throughout the journey.Mutual Interaction Between System Levels

The ULL Multilevel Framework as presented in chapter 3 explains how Urban Living Labs are related to three different system levels: the innovation ecosystem (top-level), the collaborative platform (middle level), and the real-life environment (bottom-level). Development at these three levels mutually influence each other in various ways. The top-down process is about translating a complex urban challenge into concrete innovation experiments. The bottom-up process is then about learning from these on-the-ground experiments and then scaling those insights into city-wide policies.

Different stakeholders may contribute at different levels. An important challenge is to keep efforts on all three levels aligned, as not everyone will be able to see the overall picture. For example, decision-makers at the municipality might shape strategic directions at the top level, while operational or context specific experts may provide hands-on input during experiments on the bottom level.

The Eight Key Activities of the ULLWOW

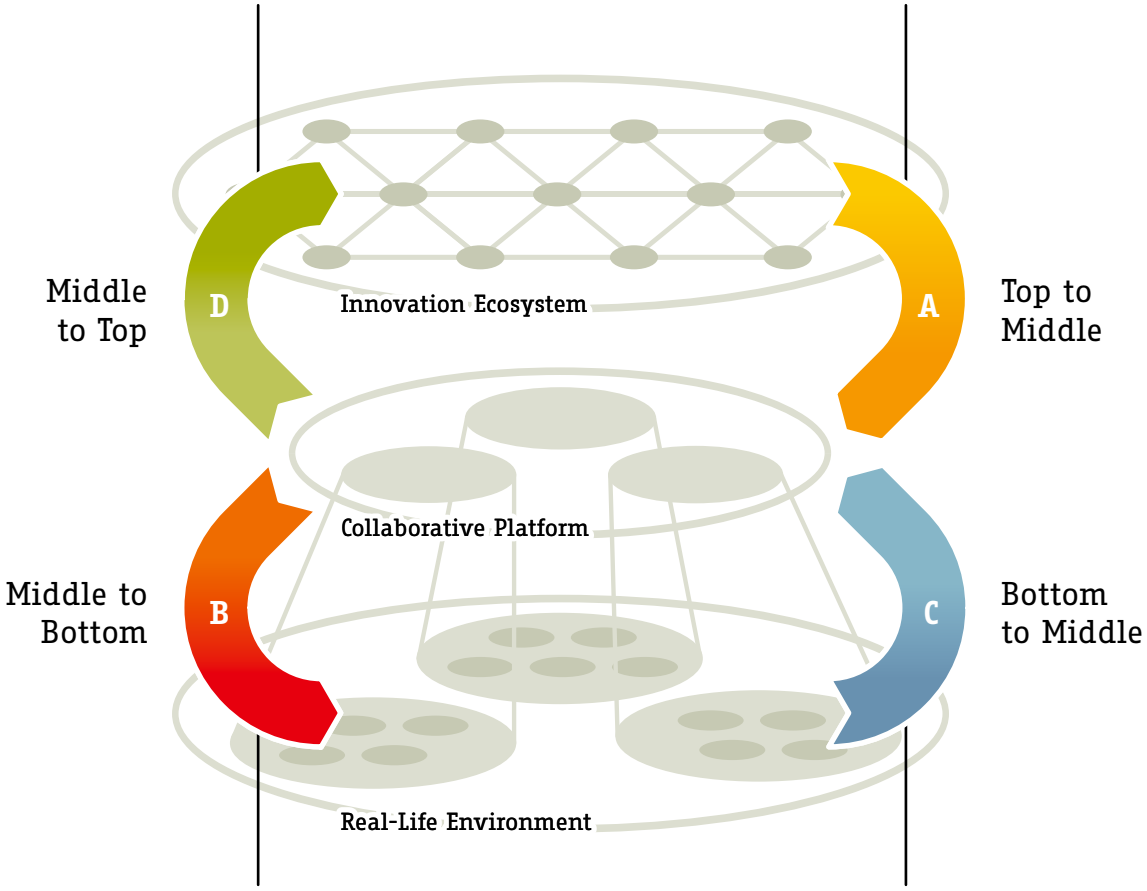
The various processes within the framework do not necessarily take place in a strictly defined manner. Urban Living Labs can start top-down based on strategic ambitions (e.g. a city's sustainability roadmap or urban innovation project) or emerge bottom-up via grassroots initiatives (e.g. citizens or startups testing circular waste systems). Regardless of the starting point, impact grows when the three systemic levels are connected—linking experimentation, learning, and systemic change into a continuous adaptive cycle.

D Scaling and Embedding

Lessons are shared across the innovation ecosystem, informing policies, business strategies, and city-wide implementation. Successful experiments with water-permeable streets, for example, inspire changes in urban design guidelines for future construction projects.

A Defining the Challenge

Stakeholders that are part of the innovation ecosystem define a complex urban challenge and establish a shared vision for the ULL. For example, reducing flood risks in vulnerable districts leads to identifying the need for nature-based water management solutions.



B Designing Experiments

Within the collaborative platform, this strategic challenge is translated into concrete experiments in a real-life environment. For example, by setting up an experiment to introduce green roofs and water-permeable streets in selected neighborhoods.

C Learning Together

Insights from experiments are gathered, evaluated, and discussed with relevant stakeholders. Finding out that green roofs are effective but relatively expensive, for example, may lead to the exploration of cheaper alternatives.

Illustration 11: Mutual Interaction among System Levels

KA1. (Re)Create Shared Mission

Bring all key partners together to define a common problem and objective that will steer the ULL's efforts and shape the urban changes it wants to achieve.

KA2. (Re)Design ULL Plan

Develop or update a ULL plan by clarifying the ULL's purpose, assigning roles, and outlining how resources will be allocated.

KA3. (Re)Design Experiments

Plan targeted experiments to test new ideas in real-world conditions, ensuring each experiment is set up to generate actionable insights for the wider city.

KA4. Implement Experiments

Launch the experiments in the field—engaging local stakeholders, collecting data, and observing how solutions perform on the ground.

KA5. Learn from Experiments

Review the outcomes of experiments to determine what worked and what did not, capturing valuable lessons to guide your next steps.

KA6. Integrate and Contextualize

Connect the insights from your experiments back to the overall ULL's vision and urban goals, ensuring each lesson informs future actions.

KA7. Disseminate Learnings

Share your successes and learnings with a broader audience—both within your network and beyond—to drive wider adoption and scaling of solutions.

KA8. Monitor Systemic Impact

Continuously track your ULL's progress over time, measuring its ongoing impact on urban innovation and its contribution to lasting change in the wider city.

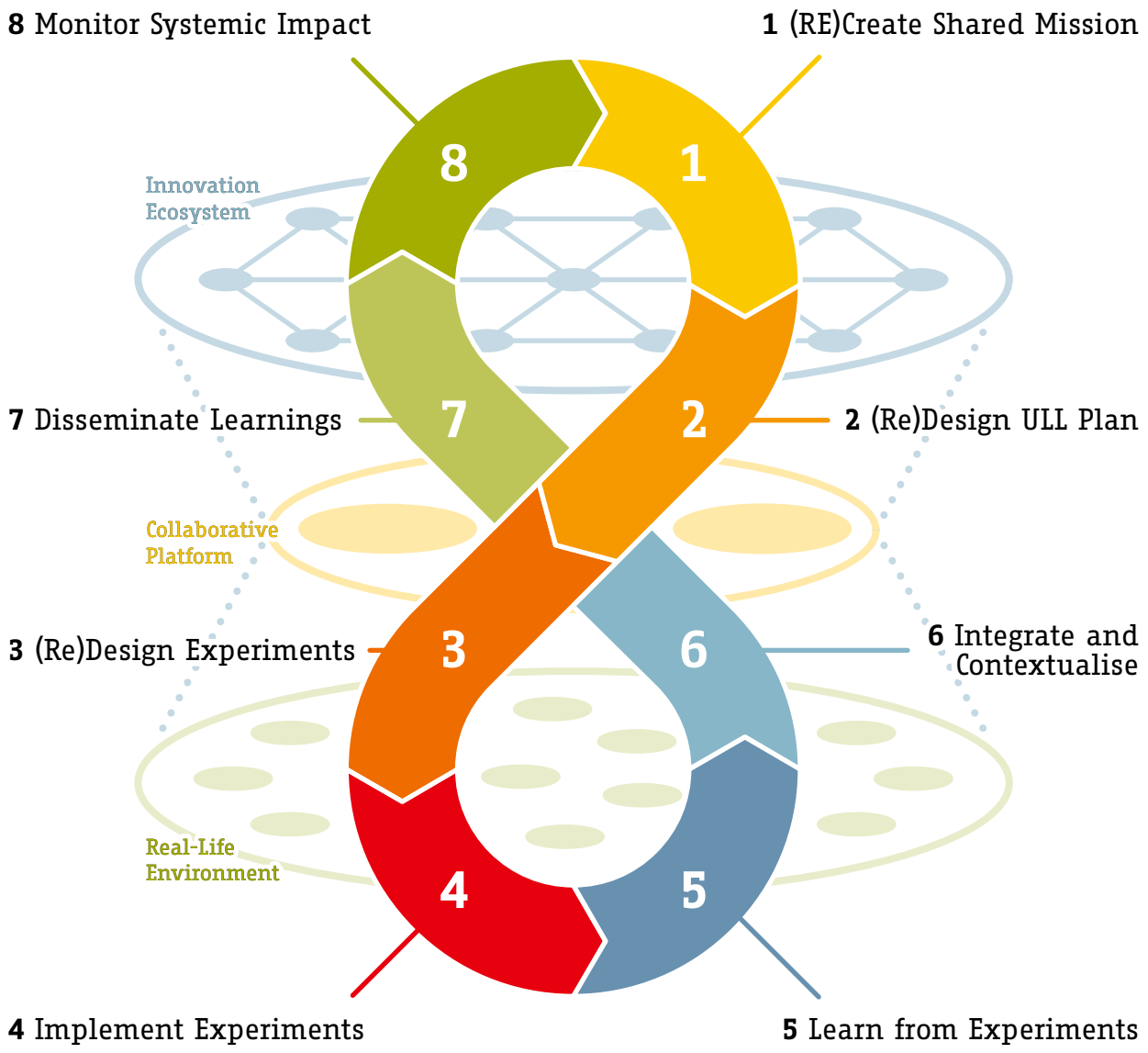


Illustration 12: The Urban Living Lab Way of Working (ULLWOW)

However, to simplify and make this process actionable, we've broken it down into eight key activities. Together, these form the Urban Living Lab Way of Working (ULLWOW). This structured yet flexible approach helps ULLs set clear objectives, design and implement experiments, learn from real-world results, and scale successful innovations across the city.

A Flexible Approach

Implementing and managing a ULL is an iterative process of action, experimentation, and continuous learning, where activities are revisited as new insights emerge. While the Key Activities appear to follow a strict sequence from planning to implementation and evaluation, in practice they often overlap or run in parallel, depending on the ULL's phase and needs. For example, early on a ULL might address all activities at a high strategic level to develop an overall plan, while later, as the ULL matures, it can dive deeper into specific areas.

The Urban Living Lab Way of Working (ULLWOW) is not a rigid blueprint. It is intended to provide a guiding framework that adapts to the unique context and partnerships of each Urban Living Lab. While no single approach fits every ULL, the ULLWOW provides several benefits to help ULLs:

- ↳ Gain an overview of the Eight Key Activities.
- ↳ Focus efforts by prioritizing essential activities with the right stakeholder groups at the right times.
- ↳ Support informed decision-making by clarifying roles and responsibilities.
- ↳ Embed scaling from the start, ensuring that experiments drive lasting urban change.
- ↳ Capture and share learnings across various ULL initiatives.

This flexible approach empowers ULLs to navigate complexity, seize emerging opportunities, and maintain momentum, even when facing challenges like unclear roles or slow decision-making, ultimately driving meaningful urban transformation.

Illustration 13: The Urban Living Lab Way of Working (ULLWOW)

Getting Started

The following pages will walk you through each of the Eight Key Activities. For every activity, you'll find:

- Clear Explanations. What the activity involves and why it matters.
- Practical Steps. Hands-on guidance to put the activity into practice.
- Common Pitfalls and Solutions. Real-world insights and strategies to overcome challenges.
- Reflection Questions. Prompts to help you adapt the activity to your local context.
- Case Examples. Stories from successful ULLs that illustrate the activity in action.

Throughout the description of the Key Activities, we introduce several practical tools that can be applied such as stakeholder mapping exercizes, evaluation templates, and impact monitoring frameworks. Some of these tools are widely available online or in other publications, while others have been specifically developed and refined through the experience of AMS Institute.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Key Activity 1: (Re)Create Shared Mission

Developing a clear, actionable mission is the foundation of an Urban Living Lab (ULL). It aligns all stakeholders around a common goal, ensuring everyone understands the urban challenge, the ULL's purpose, and their role in it. A well-crafted mission provides direction and flexibility, guiding the ULL through every stage of experimentation and scaling. Co-creating and refining the mission with stakeholders helps ensure the ULL's scope is connected to their needs and strategic agendas.

An effective mission statement answers what the urban challenge is about, which stakeholders need to be involved, and how the ULL will contribute to addressing this challenge. Creating an effective shared mission involves several interconnected actions. These steps are not strictly sequential. Also, not all stakeholders need to be involved in every step. Expect to revisit and refine the mission iteratively as new insights emerge.

Each Key Activity (KA) is further broken down in smaller steps, with case examples illustrating their execution.

Establish a clear, actionable mission that unites all stakeholders around a common goal

KA 1.1. Understand the Urban Challenge

Aim

Identify the complex urban challenge that the ULL aims to address. Understand why it is complex and explore how it is interconnected with and embedded in the city's systems.

How

It may be helpful to use system mapping techniques to visualize how various elements of the overall urban system interact with each other. Use methods like Theory of Change, Backcasting, Assumption Mapping, or Impact Pathways to guide discussions on the problem, define desired outcomes, and identify potential solution directions. To explore the challenge from multiple perspectives, ask questions like:

- ↳ *What makes this challenge complex?*
- ↳ *How do different elements influence one another? (e.g. technological, social, economic, ecological, political, legal, behavior)*
- ↳ *What risks or barriers might arise when addressing this challenge?*
- ↳ *Which aspects should the ULL focus on or prioritize?*
- ↳ *What can each stakeholder contribute?*
- ↳ *How will the success of the ULL be measured?*

KA 1.2. Identify Relevant Stakeholders

Aim

Identify the key stakeholders that are related to the challenge. Without the involvement of the relevant stakeholders, you risk overlooking crucial perspectives or failing to secure the contribution that may be necessary for successful implementation of the envisioned change.

How

Map all relevant stakeholders, such as local authorities, businesses, and community groups, and analyze their roles, interests, and relationships. Stakeholders themselves often know who else should be involved. Facilitate a dialogue with all relevant stakeholders and use one-on-one stakeholder interviews, co-creation workshops, and mapping tools to ensure no critical voice is overlooked. Consider using the multilevel perspective to identify stakeholders across the three levels of the ULLWOW:

- **Innovation Ecosystem.** Stakeholders needed to support scaling and adoption of solutions.
- **Collective Platform.** Stakeholders who help orchestrate and manage co-creation and learning processes.
- **Real-life Environment.** Stakeholders directly involved in local experiments and other innovation activities.

KA 1.3. Create a Stakeholder Engagement Plan

Aim

Develop an approach to effectively engage stakeholders throughout the ULL process. Successful co-creation depends on aligning diverse stakeholders with different motivations, priorities, and ways of working. Engaging them early ensures that solutions are validated along the way, increasing the likelihood of adoption. But remember that co-creation is a means, not an end Not every stakeholder needs to be involved in every activity. Tailor their involvement to match their interests and availability. For example, an entrepreneur involved in a local experiment may not need to attend a strategic policy meeting with city officials. It is important to align the scope of various activities with stakeholder needs and strategic agendas to effectively engage them.

How

Create a stakeholder engagement plan by considering each stakeholder's potential contribution and what they hope to gain from participating. Build connections to ongoing stakeholder events and activities, ensuring that their participation aligns with their existing work and priorities. Reflect on the following questions:

- *Why is this stakeholder relevant for the Urban Challenge that we want to address?*
- *Why is this stakeholder relevant for the Living Lab?*
- *Why is the Living Lab relevant for this stakeholder?*
- *How should this stakeholder be involved? (e.g. co-creation workshops, advisory role, pilot testing)*
- *When or how frequently should this stakeholder be involved?*

Aim to articulate the unique value the ULL may offer to stakeholders. It could be a real-life testing location, access to an innovative ecosystem, regulatory support, visibility for experiments, or a combination of these. For instance, the Marineterrein Living Lab (see page 48) provides both a physical testing site, access to creative networks, regulatory support, and communication platforms that amplify the impact of experiments.

KA 1.4. Emphasize a Learning Culture

Aim

Emphasis a collaborative learning culture that fosters trust, embraces experimentation, and constructively manages conflicts. Complex urban challenges and an open-ended innovation approach often involve conflicting interests and uncertainty. Mistakes and failures are part of the learning process, but people tend to share successes more readily than failures. Creating a culture that normalizes learning from both successes and failures is crucial.

How

Create a Safe Space. Agree on 'rules of engagement' for open dialogue, experimentation, and knowledge sharing, creating a shared understanding and a common language for the journey. Acknowledge the principles of hope-driven transition, focussed on 'it's possible, when we...' as a counter to naive optimism or pessimism, both leading to inertia.

Commit to a Different Way of Working. Explain that the process is open-ended, and that uncertainty and potential failure are part of the journey. People are often unfamiliar with working this way. It can help to co-develop a set of guiding principles, such as a social contract or manifesto, to encourage awareness and commit to fostering a culture of trust, openness, and collaborative learning. Emphasize that both successes and failures are seen as stepping stones.

Adapt to Stakeholder Needs. Use tailored engagement approaches, such as one-on-one discussions for time-constrained policymakers or entrepreneurs, and hands-on workshops for more practically-oriented stakeholders or academic participants. This ensures all voices are heard and prevents dominant perspectives from overshadowing others (see Key Activity 3 for more on citizen engagement and stakeholder motivations).

Facilitate Collaborative Decision-Making. Avoid rushing to consensus. Quick voting methods like dot-voting with Post-it notes can suppress minority viewpoints and lead to shallow decisions. Instead, encourage dialogue that values diverse perspectives, fostering richer, more robust outcomes.

Trust the Process. Encourage patience. Co-creation takes time. Investing in mutual understanding and iterative learning builds the foundation for sustainable solutions.

KA 1.5. Define and Communicate the Shared Mission

Aim

Define a shared mission to ensure that the shared goals are understood, supported, and adopted. A written mission prevents misunderstandings, keeping stakeholders focused on a common objective, even when their priorities or methods differ. Clarify and strengthen commitment and a sense of unity around the mission.

How

Develop a clear, concise mission statement that reflects the urban challenge, the part of the solution that the ULL aims to contribute, the shared values, and learning goals. Ensure the statement captures the systemic complexity of the situation and clarifies what needs to change, why, and how. The mission statement should clearly define the urban challenge the ULL seeks to address. Explain what makes the problem complex,

why it is difficult to solve, and why systemic change is needed. Also, clearly explain the innovation and learning objectives of the ULL. Move beyond vague aims like 'making the city more sustainable.' Instead, specify concrete, measurable outcomes to guide experiments and track impact (also see Key Activities 5 and 8). Use tools like Assumption Mapping or a Dynamic Learning Agenda to set clear innovation and learning objectives.

Consolidate the shared mission into a written mission statement that reflects shared goals. A visually engaging summary, such as an infographic, can enhance understanding and accessibility. Consider including a social contract to underscore the commitment to iterative learning and open collaboration. Celebrate the milestone with all partners through a formal launch or announcement to drive engagement, build momentum, and reinforce alignment.

Reflective Questions

↳ *Are all stakeholder perspectives represented in the mission?*

↳ *Is the mission clear and actionable for every participant?*

↳ *Does the mission guide future experiments and decisions?*

↳ *Are the objectives clearly defined and actionable?*

Case Example 4: Mapping the Innovation Ecosystem

Challenge

When starting a living lab, you usually need to work with a lot of different stakeholders. Sometimes, it's easy to see how they are connected, but often it's not. For the TBL-infra project, we found ourselves overwhelmed by the sheer number of stakeholders, projects, innovations, researchers, and other elements that were all somehow connected.

Solution

We needed a way to map everything, and we found an online networking analysis tool that turned out to be just what we needed. The tool I used is named Kumu and it makes it simple to organize information into relationship maps. You can upload data using an Excel sheet or just enter it directly into the map online. The maps are visually appealing and have lots of filtering options so you can highlight different connections or focus on specific details. The platform is user-friendly for beginners but also offers advanced features for customization. It enables filtering and highlighting of connections to reveal patterns and focus on specific elements.

How It Helped

Using the networking analysis tool was a game-changer for us. It helped us see the bigger picture and uncover new opportunities within and across the various living labs that we are engaged in. We found new connections and ways to organize things, and it made explaining everything to our stakeholders so much easier. It was not just a tool for us, the visual became a key communication tool, making it easier to explain the complexity of the living lab network to stakeholders.

Recommendation

“Visualizing your living lab’s ecosystem can be a powerful tool, helping you to get a clearer picture of who’s involved and how they relate to one another. It can also help you spot new connections you might not have thought of and gives you a solid overview to work from. Find out what network analysis tools work best for you, for instance Kumu, Gephi, Cytoscape, or NetworkX.” (From the perspective of Anke van Gelderen, working with Toekomstige Leeromgeving Infra project)

Reference

Find out more about the TBL Infra project at www.toekomstbestendigeleefomgeving.nl

Case Example 5: From Stakeholder Mapping to Stakeholder Engagement

Challenge

Urban Living Labs often operate in complex environments with many different actors like local authorities, businesses, researchers, community groups, and residents. Engaging the right stakeholders at the right time is crucial but can be difficult when the landscape is unclear. The six Fellow Cities in the ATELIER project are all working on Positive Energy Districts. They faced challenges in identifying key players, understanding their influence, and developing a structured approach to stakeholder engagement. The question was, 'How do you map stakeholders effectively and turn this into a concrete engagement plan?'

Solution

We developed a structured Stakeholder Mapping & Engagement Plan workshop. The workshop was designed to uncover key players and their relationships, assess their relevance, and plan engagement accordingly. The process followed four steps:

- **Stakeholder Mapping.** Identify key actors such as problem owners, decision-makers, knowledge holders, and those affected by the problem.
- **Validation.** Through one-on-one interviews or group discussions, validate the stakeholders and refine the map.
- **Stakeholder Value Assessment.** Reflect on what value the lab creates for each stakeholder and assess the necessary level of their engagement.
- **Engagement Plan.** Develop a plan describing how and when to engage each stakeholder throughout the lab process.

The workshop included an introduction to mapping tools and techniques, collaborative stakeholder mapping exercises, a presentation of maps and initial engagement strategies, and a group discussion and peer feedback on each city's engagement plan.

How It Helped

The mapping and planning process gave the Fellow Cities:

- **Clarity on Stakeholders.** Cities better understood who to involve, when, and why.
- **Stronger Engagement.** Tailored engagement plans ensured key actors were brought in at the right moments, improving buy-in and support.
- **Value Alignment.** Reflecting on stakeholder value helped align project goals with the needs and interests of partners, fostering stronger relationships.
- **Better Anticipation of Gaps.** Visualizing the ecosystem revealed missing actors and underdeveloped connections.

Recommendation

"Don't just map who's involved but map what they need and what you can offer them. Understanding these relationships early on builds trust and ensures long-term collaboration." (From the perspective of Juanita Devis, working with ATELIER)

Reference

Find out more about the Atelier project at https://smartcity-atelier.eu/

Key Activity 2: (Re)Design ULL Plan

The ULL Plan is the operational blueprint for turning your shared mission into action. It outlines the structure, governance, and resources needed to guide experimentation and continuous learning. It is more than a static plan. It is a living document that adapts as your ULL evolves. With a solid plan, you ensure clear roles, responsibilities, and commitments from all stakeholders, keeping everyone aligned and on track. An effective plan addresses the key elements of the lab. The scale and scope of a ULL plan may vary. For some initiatives, a simple outline of a few pages suffices, while other initiatives will require more detailed documentation, for instance if the initiative is part of a larger funding initiative or research project.

Design Flexible Foundations for Learning Together

KA 2.1. Scope the ULL Plan

Aim

Establish a shared understanding of the operational setup of the Urban Living Lab, ensuring that all stakeholders agree on the lab's initial structure, roles, and resources.

How

Facilitate an initial scoping session using tools like the Urban Living Lab Canvas that has been developed by AMS Institute. Bring together key stakeholders from public, private, academic, and community sectors to co-create a preliminary overview of the ULL's structure. Focus on clarifying:

- The complex urban challenge the lab aims to address.
- The innovation and experimentation goals, and their contribution to the urban challenge.
- Relevant partners and their potential contributions.
- Available resources (e.g. funding, facilities, location, expertise).
- Initial governance approach and collaboration principles.

Capture this in a flexible, visual format to serve as a living document. Keep it flexible and simple as this document will grow and shift over time as new insights emerge.

KA 2.2. Create the ULL Plan

Aim

Formalize the ULL's setup, securing stakeholder commitment and establishing a shared operational plan.

How

Build on the scoping outcomes by organizing collaborative planning workshops or bilateral meetings to finalize the ULL Plan. Depending on the phase or specific focus areas of the ULL, various tools and approaches can be employed to define key elements of the ULL Plan. Ensure that:

- ↳ All relevant partners shape the plan to strengthen ownership. Actively involve local experts, community leaders, and practitioners in (re)defining the plan. This ensures your plan is grounded in real-world experiences and has the collective intelligence needed for successful implementation.
- ↳ Roles, responsibilities, and resources are clearly defined, and governance and decision-making processes are transparent and fair.
- ↳ The level of detail matches the maturity and complexity of the ULL, ranging from a concise one-pager to a fully detailed operational plan.

Formalizing this plan, for instance in the form of a written agreement, a Memorandum of Understanding, an infographic, or simple action sheet, can foster clarity and accountability.

KA 2.3. Periodically Revisit the ULL Plan

Aim

Ensure the ULL Plan remains relevant, adaptive, and aligned with evolving needs, experiments, and urban dynamics.

How

Treat the ULL Plan as a living document that is regularly reviewed and adjusted. Schedule structured reflection moments, for instance quarterly or annual review meetings, with stakeholders to:

- ↳ Assess progress and lessons learned from experiments.
- ↳ Revisit roles, resources, and priorities based on changing conditions.
- ↳ Update agreements, governance, or resources if needed.

Embedding this adaptive review process ensures that the ULL stays aligned with long-term goals. This is especially important when an initiative is part of a larger project or programme, or where the people that are actually involved in the ULL sometimes work based on a predefined plan which may be created by strategic partners, or which may require operational adjustments as the project progresses.

KA 2.4. Key Elements to Address

The ULL Plan is a dynamic, living document that should evolve alongside the development of the lab. Rather than serving as a fixed blueprint, it should be continuously reviewed and adapted through ongoing dialogue among stakeholders. This ensures the plan stays aligned with the ULL's shifting needs, new insights, and emerging opportunities. The plan should remain responsive, flexible, and future-oriented. Focus on these points:

I. Complex Urban Challenge

↳ Clearly define the urban challenge the ULL seeks to address.

↳ Ensure your challenge aligns with broader strategic frameworks and long-term municipal policies. For example, the City of Amsterdam has committed to becoming fully circular by 2050. Connecting the ULL to relevant policy frameworks can help secure institutional support and legitimacy.

II. Systemic Multi-Disciplinary Perspective

↳ Make sure you understand the systemic nature of the challenge. How are different components of the problem interconnected? Which aspects of the system will remain unchanged, and which will the ULL focus on transforming?

↳ Anticipate legal and regulatory challenges early, as they are an integral part of the urban system. If possible, position the ULL as a regulatory sandbox to enable safe experimentation. In some cases, exemptions from certain rules may be possible within a designated area and timeframe—creating a temporary "rule-free zone" to foster innovation.

III. Interdisciplinary Stakeholder Cooperation

↳ Engage key decision-makers early to ensure strategic alignment and increase the likelihood of implementation. Clarify the roles and responsibilities of all stakeholders and secure their commitment.

↳ Determine which partners are necessary to ensure that lessons learned will be implemented in real-life. Define who will take ownership of the outcomes after the ULL concludes.

↳ Foster participatory governance by ensuring that all voices are heard, including those from underrepresented communities. Establish collaborative decision-making processes and co-create agreements to build trust, ensure transparency, and balance power dynamics.

↳ Identify the subject-matter expertise needed—such as specific knowledge in urban planning, renewable energy technology, or legal frameworks. Often, funding is required to enable these experts to dedicate their limited available time to the project.

IV. Real-life Environment

↳ Space & Facilities. Select test locations such as a specific street, neighborhood, or district. These real-life settings allow for contextual experimentation. In addition, working spaces such as offices and co-creation hubs may be needed to support collaboration, planning, and reflection. Supporting facilities like meeting rooms, and workshop areas can enable hands-on engagement and iterative development.

↳ Technology & Materials. Use digital tools for data collection, collaboration, and impact tracking. Ensure access to physical materials and infrastructure that may be required to set up and carry out specific experiments effectively in the urban context.

↳ Legal & Regulatory Considerations. Secure necessary permits, comply with zoning laws, and address data protection regulations to ensure experimentation in public space is safe, lawful, and ethically grounded.

V. Iterative Experimentation

↳ Embed continuous innovation and learning cycles into the ULL process by establishing “experiment–evaluate–adapt” loops.

↳ Define success indicators and plan how to measure outcomes regularly.

↳ Ensure the ULL Plan remains a living document that can be refined as new insights, partnerships, or challenges arise.

VI. Open-Ended Process and Outcomes

↳ Even though ULLs are by nature open-ended, it's important to plan for long-term impact from the outset. Develop strategies to scale successful innovations beyond the original setting. Connect outcomes to broader urban ecosystems, policy frameworks, infrastructure, or business models.

VII. Collective Learning Process

↳ Support a culture of collective learning by creating conditions for open knowledge exchange while protecting intellectual property and data rights.

↳ Intellectual Property: Respect IP rights by establishing clear agreements that allow shared use where beneficial while protecting contributors' ownership.

↳ Data Sharing: Use open platforms and collaborative tools to make information accessible to all stakeholders. This promotes transparency, trust, and innovation.

↳ Data Management & Privacy: Ensure compliance with data protection laws (e.g. GDPR). Implement clear data governance frameworks for storage, access, and usage to safeguard ethical standards and legal compliance.

VIII. Funding

↳ Develop a financial strategy that supports both short-term implementation and long-term sustainability. Initial funding may often come from grants, subsidies, or public investment, for instance, when the ULL contributes to policy goals like circularity or climate neutrality.

↳ Think beyond temporary funding. Explore sponsorships, memberships, and service-based models as options for a sustainable business model.

↳ Diversify funding sources and secure necessary resources (e.g. funding, expertise, facilities, and technology) while allowing flexibility to adapt as the ULL evolves.

Reflective Questions

↳ *Does the ULL Plan clearly define roles and responsibilities?*

↳ *Is the ULL Plan flexible enough to adjust as new insights emerge?*

↳ *Have you considered a variety of funding sources to sustain the ULL?*

↳ *Are all stakeholders' commitments documented and agreed upon?*

↳ *How will you ensure the ULL Plan evolves alongside ongoing experiments?*


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Case Example 6: Collaboration Evolves over Time

Challenge

The Energy Lab Zuidoost started as an informal partnership between TU Delft, the municipality of Amsterdam and AMS Institute, aiming to bridge theory and practice in the social energy transition. Initially, the partners set up a meeting space in the Amsterdam Southeast district, and selected experimentation sites such as a demo house in the Reigersbos neighborhood, using platforms like openresearch.amsterdam to share early reports and ideas. As the lab secured major funding from The Netherlands Enterprise Agency (RVO) and the Dutch Research Council (NWO), and two universities in Amsterdam joined as partners, the lack of a formal structure became a challenge.

Solution

To address this, the partners developed a formal collaboration agreement. Over the course of a year, the partners worked together to establish a steering committee, a strategic learning agenda, and defined annual contributions from each partner, both financial and in-kind contributions, while ensuring that differences in monetary input did not dictate influence. The process built up to a symbolic signing ceremony at the TU Delft Urban Energy Symposium, reinforcing trust and commitment among the partners.

How It Helped

The formal agreement provided a clear structure streamlining decision-making, clarifying roles, and ensuring sustainable resource allocation. It strengthened collaboration, enabling the lab to secure larger projects and integrate innovations into the broader urban context, ultimately embedding the lab within the local community.

Recommendation

“The key to impactful living lab work is not quick interventions or short-term ties, but building long-term partnerships: connecting local organizations, companies, the municipality, and academic experts, many of them outsiders but who, over time, become true insiders.” (From the perspective of Mark Kauw, working with the Energy Lab Zuidoost.)

References

See page 36 for a description of Energy Lab Zuidoost or visit their website:
www.energielabzuidoost.nl

Key Activity 3: (Re)Design Experiments

Experiments are the main building blocks of the ULLWOW, enabling ULLs to address complex urban challenges. An experiment can take various forms, depending on the situation. It can be about a pilot project, a demonstration, an innovation intervention, or any other form. The key principle is that solutions are developed that contribute to solving complex urban challenges, and that these possible solutions are designed and tested together with stakeholders in a real-life environment.

This activity distinguishes between creating a structured process for stakeholders to collaboratively generate experiments and designing each experiment in detail. Additionally, we highlight the importance of consciously defining the level of citizen participation in experiments and designing experiments from a portfolio perspective.

Translate Urban Challenges into Real-Life Local Innovation Experiments

KA 3.1. Define the Process to (Re) Design Local Experiments

Aim

Ensure experiments emerge from a transparent, flexible process that aligns with the mission that has been developed in Key Activity 1, and in line with the ULL Plan as developed in Key Activity 2. This should ensure that experiments tackle real urban challenges, support continuous learning, and keep the ULL dynamic and effective. Without a structured process for defining the experiments, experiments risk being either too rigid (unable to adjust to emerging insights) or too loose (lacking strategic focus and impact).

How

Clearly define the process for generating and refining experiments while maintaining flexibility. This process varies per ULL. Some ULLs define all experiments in advance, while others operate more flexibly, inviting startups, students, or local actors to initiate experiments. Regardless of the approach, the process should be embedded in the ULL's governance structure so stakeholders know when and how they can contribute. Common processes include:

- **Co-creation sessions** with stakeholders related to the specific urban challenges that are being addressed, together developing possible solutions and experiments.
- **Internal iteration loops** where previous lessons inform new or adapted experiments.
- **Open calls or challenge-based approaches** inviting external innovators to propose new experiments.
- **Scouting mechanisms** to identify innovative solutions and potential partners for conducting the experiments.

KA 3.2. (Re)Design Experiments in Line with the ULL Mission Statement

Aim

Create a plan for the experiment, ensuring each experiment aligns with the urban challenge (see Key Activity 1) and the ULL Plan (see Key Activity 2).

How

We distinguish three steps: Design, Decide, Formalize.

Design. Begin by designing your experiment. This includes defining the innovation goal, formulating clear research questions, outlining the execution plan, identifying regulatory requirements, setting up data collection and evaluation strategies, and planning for stakeholder engagement. Flexibility in the design phase is crucial—experiments should be adaptable, even when predefined, to respond to real-world developments and insights.

Decide. Evaluate the experiment's relevance and design using the following criteria:

- **Innovation Relevance.** The experiment should address a pressing urban challenge and align with the ULL's overall mission.
- **Clear Research Question.** A specific and measurable research question should be established to guide the experiment.
- **Stakeholder Engagement.** The experiment should actively involve key stakeholders and end-users, ensuring its relevance and fostering acceptance.
- **Execution Feasibility.** Ensure the execution plan is realistic, taking into account location, available resources, permits, legal conditions, and technical requirements.
- **Open Data and Transparency.** Findings and data should be accessible and, where possible, open-source to promote knowledge sharing and broader application across urban contexts.

Formalize. Formalize the experiment through agreements when necessary to clarify roles, responsibilities, and liabilities. Sometimes it is important to formalize experiments using user agreements, ensuring transparency and shared understanding throughout the experimentation process. This ensures that all stakeholders are clear on their commitments and that the experiment is legally supported.

KA 3.3. Consciously Include End-user Participation

Aim

Ensure experiments are inclusive, address real needs, and foster acceptance of solutions by future end-users. Engaging citizens is crucial for developing solutions that will be adopted. Their involvement ensures that solutions are grounded in real needs, reducing future resistance and inequality. Ideally, end-users are involved throughout the whole ULLWOW process, but we describe them here as their participation becomes most concrete in the local experiments. A well-defined participation process promotes inclusivity, addresses power dynamics, and fosters collaboration in local experiments.

How

When determining the participation of end-users in an experiment, consider the following:

- **Identify End-users.** Define who the end-users are and their role in the experiment. Ensure those who will ultimately adopt the solution are involved from the start.
- **Clarify Expectations.** Communicate and manage expectations regarding the level of influence of the end-users to avoid misunderstandings. See also the next step that focussed on the level of participation.
- **Clarify Compensation.** Be transparent about the value that end-users will receive in return for their involvement: What is in it for them? Consider appropriate compensation for their contributions (see case example Manifesto, page 103).
- **Question Representation.** Ensure all voices are heard, addressing power imbalances and preventing any group from dominating the conversation (see case example MALL Groenmarkt, page 111).
- **Assess Feasibility.** Be realistic about available time and resources for engagement. Adjust the level of participation as needed to make sure it is practical and achievable.

KA 3.4. Determine Participation Level

Aim

Involving citizens can take various forms, ranging from simple information-sharing to full decision power. Different projects require different levels of participation. Sometimes just informing is sufficient, while at other moments it is crucial to emphasize that all responsibility and decision power lies with the residents of the street, neighborhood or local district.

How

When determining the level of engagement and participation of citizens, several forms of engagement can be distinguished. A model regularly used by governments to determine the level of participation is developed by the International Association for Public Participation (IAP). The IAP2 Spectrum of Public Participation distinguishes five levels of participation, as presented in illustration 14.

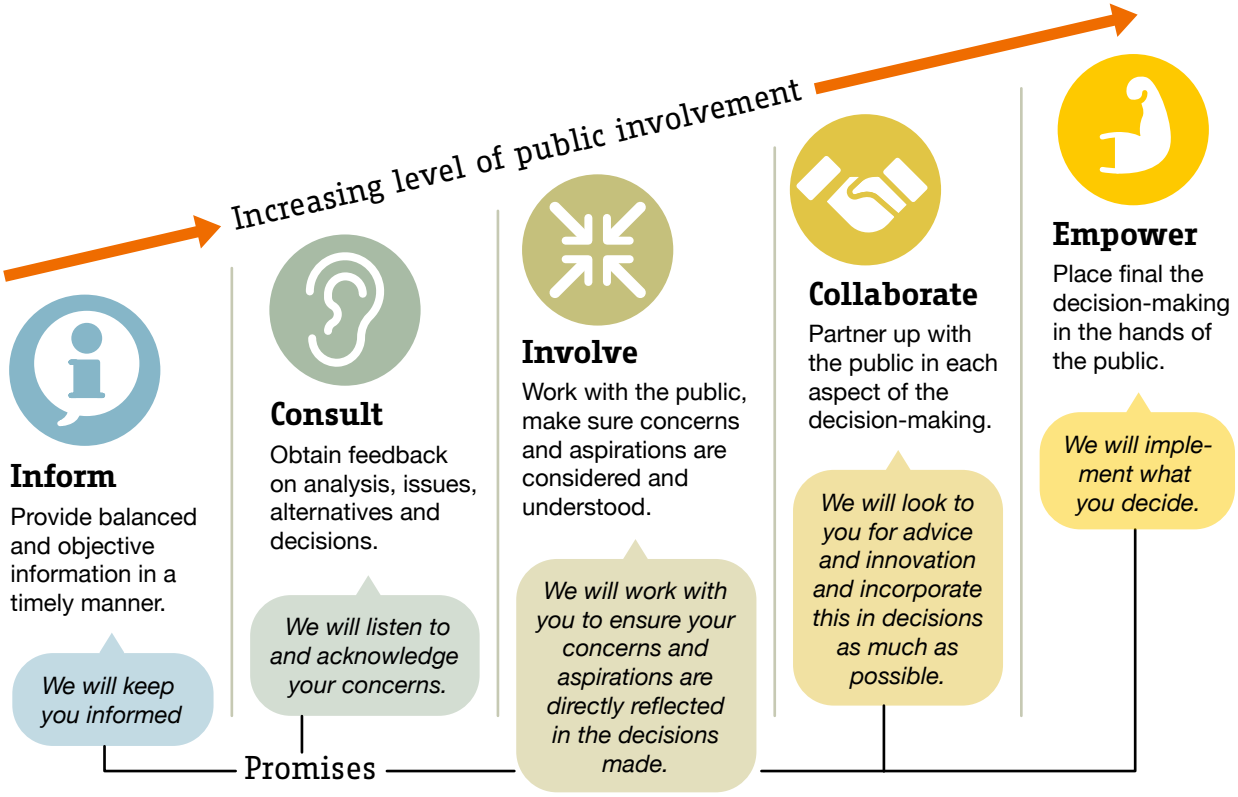


Illustration 14: Spectrum of Public Participation (based on International Association for Public Participation, 2018).

KA 3.5. Manage a Portfolio of Experiments

Aim

Strengthen the impact of the ULL by coordinating multiple experiments using a portfolio approach. This means managing multiple experiments within a ULL in a coordinated, strategic way, rather than treating them as isolated projects. This ensures that experiments are aligned with overarching goals, complement each other, and collectively contribute to urban innovation and learning.

How

Balancing large, long-term experiments with smaller, short-term initiatives (quick-wins) helps maintain momentum in the learning process and allows quickly adapting to changing circumstances. Consider mapping experiments based on impact versus effort axes to guide decision-making, prioritizing initiatives that balance high feasibility with meaningful outcomes. This approach helps refine ongoing experiments, stop those with limited value, and strategically select new ones that align with the ULL's mission. Assign clear responsibilities for tracking progress, capturing lessons learned, and adjusting the portfolio as needed.

Reflective Questions

- *Is the process for designing and refining experiments clearly defined and communicated among stakeholders?*
- *Are experiments designed to effectively address the urban challenges identified in the ULL mission?*
- *Have practical considerations like context, resources, and regulations been integrated into experiment designs?*
- *Is end-user and stakeholder involvement well-defined and inclusive to prevent future inequalities?*

Case Example 7: Using a Manifesto to Build Trust

Challenge

As the Energy Lab Zuidoost grew, and more researchers and students engaged with the Amsterdam Zuidoost district, residents began experiencing 'research fatigue.' People grew weary of being repeatedly asked to participate in interviews and surveys, feeling that little was given back in return. This strained trust and risked undermining the lab's long-term relationship with the community.

Solution

To address this, the Energy Lab co-created a Manifesto with local residents, the municipality, and other partners. It established five key principles to guide all research and practical work in the neighborhood:

↳ **Reciprocity.** Always give something back to residents.

↳ **Social Commitment.** Contribute to the community beyond data collection.

↳ **Transparency.** Be clear about your goals and intentions.

↳ **Cooperation:** Work together with residents and local partners.

↳ **Due Care:** Respect people's time and context.

The Manifesto serves as a starting point for every new researcher or student joining the lab, ensuring their approach aligns with the lab's commitment to the community.

How It Helped

The Manifesto has reduced residents 'research fatigue' and built trust between researchers and the community. It has shifted the mindset from extracting data to contributing to the neighborhood. Practical examples include students acting as energy coaches visiting households to offer advice on reducing energy bills, while simultaneously gathering valuable insights to improve local energy poverty policies. This boots-on-the-ground approach fosters mutual benefit.

Recommendation

"A co-created manifesto helps ground experiments in the needs of the community. It reminds practitioners that research is not just about collecting data, it is about creating value together with residents." (From the perspective of Mark Kauw, working with the Energy Lab Zuidoost)

References

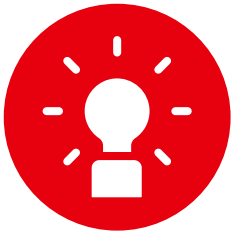
You can find the Manifesto at: https://openresearch.amsterdam/en/page/94251/manifesto-energy-lab-zuidoost. Or visit their website: www.energielabzuidoost.nl.

Key Activity 4: Implement Experiments

ULL experiments must run smoothly while generating actionable insights that inform broader urban strategies. A structured implementation process ensures both the successful execution of experiments and the capture of valuable lessons to guide future urban innovation.

Make sure that experiments are implemented in real-world urban environments

Implement Experiments **4**



KA 4.1. Clarify the Hypothesis

Aim

Formulate a clear and testable assumption that guides your experiment.

How

Define what you expect to happen as a result of the experiment. While experiments can take many forms, they generally aim to test hypotheses, generate new knowledge, or validate whether an idea works in practice. Focus on one key variable or behavior you want to influence. Use a simple "If…, then…" statement to frame a clear, testable assumption (e.g., If we install benches here, more people will linger in the square). Avoid broad goals—be sharp and minimal. Stick to testing one main variable per experiment.

KA 4.2. Start Small and Fail Fast

Aim

Keep the experiment focused and manageable in terms of scope, time, and resources. Act quickly to generate fast feedback and reduce the cost of failure.

How

- ↳ Avoid getting stuck in preparation. Instead, roll it out in the real world quickly. Limit preparation time and avoid perfectionism. Act quickly, learn fast, and adapt on the go.
- ↳ Focus on one aspect of a larger challenge. Choose a small, specific context—one street, one hour, one group, so you can learn quickly without needing massive resources.
- ↳ Use simple tools and fast, modifiable materials to create temporary objects. Think in terms of prototypes or mock-ups rather than final solutions.
- ↳ Create a minimal setup: good enough is indeed good enough. Design for quick feedback, not long-term deployment.
- ↳ Design the experiment so that it can produce learning. Accept that it might not work—and that's valuable nevertheless. You are not looking for perfection—you are looking for insight.

KA 4.3. Run the Experiment

Aim:

Ensure the experiment functions smoothly in its local context.

How:

Be prepared. Deploy the experiment with real users in a real place. Set clear start and end times. Define all materials, permissions, and roles ahead of time. Ensure that all practical elements required for the experiment are in place, from logistics and resources to monitoring and adaptation. While the initial design is established, continuous oversight on the experiments is necessary.

Be flexible. Prioritize flexibility while minimizing disruption. Be prepared to adapt in response to external influences such as weather conditions, policy shifts, seasonal changes, infrastructure constraints, or other unforeseen disruptions. The experiment must be flexible enough to adapt to real-world conditions while minimizing unintended disruptions to the surrounding environment.

KA 4.4. Observe & Capture

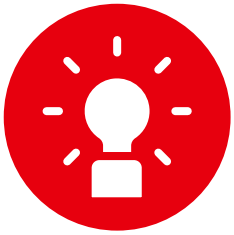
Aim

Collect meaningful, structured insights from real-world interactions.

How

Document. Ensure consistent and unbiased data collection. Capture valuable insights from experiments systematically, as this is crucial for evaluating effectiveness, scalability, and broader impact. Even small experiments can yield valuable insights when properly documented. Record details about the setup, participants, activities, and outcomes. Document what happens during the experiment through observations, notes, photos, videos, and other data. Don't rely solely on subjective impressions—collect structured evidence.

Collect feedback. Be present during the experiment if possible, to observe in real time. Use simple observation tools like quick intercept interviews to get immediate, contextual insight. Use feedback cards or observation checklists. Assign at least one person to



monitor and document continuously. Find out what people actually do, not just what they say. Regularly gather insights by organising feedback loops, reflection sessions, and reviews with experiment teams.

Clarify responsibilities. Assign someone to track progress, document challenges, and capture unexpected insights. Make sure it is clear who is responsible for collecting what data. Without structured processes and responsibilities, key lessons may be lost due to time constraints, personnel changes, or unconscious learnings.

KA 4.5. Iterate or Stop

Aim

Make an informed decision about next steps based on real outcomes.

How

Use short feedback loops to test assumptions and uncover blind spots early. Value insight over success. After each part of the experiment, assess what worked, what didn't, and why. Use the developed insights to refine ongoing experiments and shape future experiments. Decide whether to adapt and run the experiment again or stop entirely. Use the findings to make rapid adjustments for a second round or move on. Capture lessons, even from failures. Iterate only if new value can be created.

KA 4.6. Share Findings and Create a Local Narrative

Aim

Clear and engaging communication is essential to build trust and ensure that all stakeholders keep understanding the purpose of the experiment. Some people may perceive experiments as disruptive, making transparency key to fostering community support.

How

Use signage, public briefings, or digital platforms to share objectives, processes, and expected outcomes of the experiment to keep the local community informed and engaged. Clearly state the benefit for the city and its citizens (also see case examples

from MALL, Key Activity 7 and Tool L on communication). Position the experiment as part of a broader effort toward urban innovation rather than an isolated pilot. Address concerns and respect privacy, consent, and ethical guidelines.

Translate observations into actionable insights and share them across the ULL ecosystem. Feed these insights into future design and decision-making. Share findings in accessible formats (e.g. one-pagers, reports, videos, or presentations) to keep both the ULL and the local community informed and make findings accessible to different audiences.

Reflective Questions

- *Have all practical aspects of the experiment been considered?*
- *Can experiments adapt to real-world challenges and emerging insights?*
- *Are all stakeholders well-informed and engaged throughout the process?*
- *Are all processes in place for collecting relevant data?*
- *Are the results of the experiments shared to support continuous learning?*

Case Example 8: Engaging Citizens to Interact with Local Experiments

Challenge

Experimenters at the Marineterrein Living Lab (MALL) in Amsterdam need to prototype, test, and validate their solutions with end-users. However, reaching these users is difficult because the Marineterrein is a semi-closed area, historically shaped as a fortress. Its restricted access and branding prevents a diverse group of residents from engaging with the experiments onsite.

Solution

To connect experimenters with the local community, Bureau Marineterrein (one of MALL's partners) organizes a bi-annual sustainability-themed market called the Groenmarkt or Green Market. Experimenters are invited to host interactive stands where they present their prototypes, gather feedback, and collect data from residents interested in sustainability topics.

How it Helped

The market proved to be an effective way to engage citizens who care about sustainability, helping experimenters validate their designs and improve their solutions. The direct contact also raised awareness about the experiments taking place at MALL.

A follow-up challenge, however, is that this approach mainly attracts a specific group of "green elite" residents who are already highly interested in sustainability. As a next step, MALL is exploring ways to broaden participation and attract more diverse groups. This could include involving citizens earlier in the design phase of experiments or embedding user interaction more structurally into the testing process.

Recommendation

"Embedding end-user engagement into experiments early on helps build solutions that actually work for people. Markets, events, or open days are great tools—but think beyond the usual crowd. Try to involve a diverse mix of residents to get the full picture." (From the perspective of Gina Gommer, working with Marineterrein Living Lab)

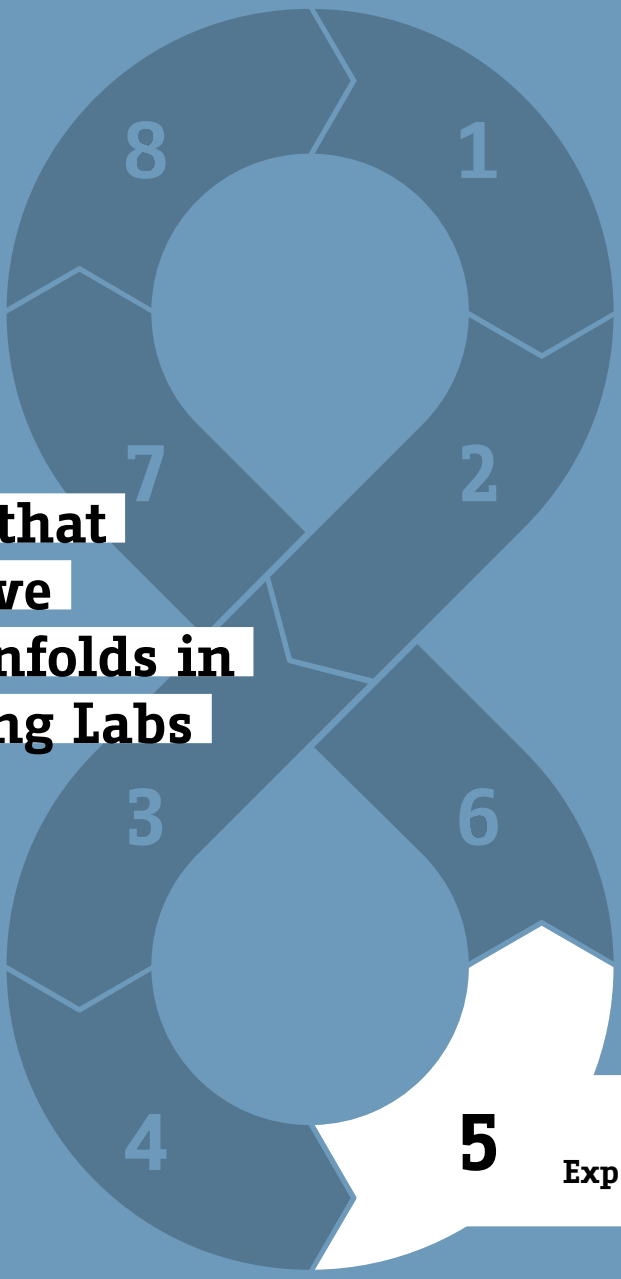
References

See page 48 for a description of the Marineterrein Living Lab or visit their website at https://marineterrein.nl/

Key Activity 5: Learn from Experiments

Urban Living Labs (ULLs) empower stakeholders to co-create knowledge and new insights through experimentation, problem-solving, and open discussion. Learning in a ULL goes beyond analyzing experiment results, however. It also emerges from the collaborative process itself. As interdisciplinary spaces, ULLs require stakeholders to adapt to different perspectives, fostering both individual, organizational and collective growth. Insights therefore can come from both the experiments and the new ways in which people work together.

Make sure that collaborative learning unfolds in Urban Living Labs



KA 5.1. Learning across different levels

The ULL Multilevel Framework helps structure learning from experiments in a wider context by distinguishing learning on multiple levels. Each contributes to addressing urban challenges in their own way:

- **Experiment Level.** What did we learn from a specific experiment? How can we refine solutions and optimize processes?
- **Innovation Ecosystem Level.** How can experiment outcomes contribute to broader urban sustainability and policy? What barriers or opportunities emerged?
- **Collaborative Platform Level.** How effectively are stakeholders exchanging knowledge and working together? How can teamwork and co-creation improve?
- **Personal & Organizational Development.** What skills and insights have participants gained? How has involvement in the ULL strengthened collaboration and innovation capacities within the involved organizations?

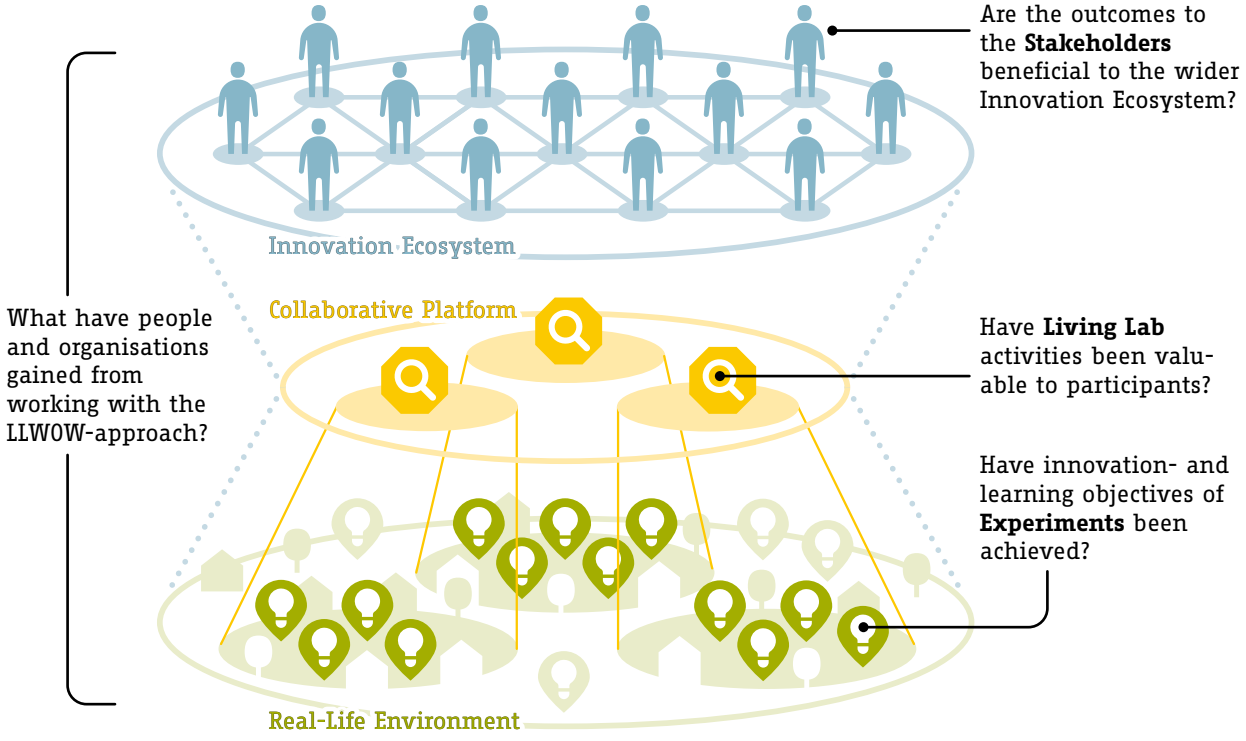


Illustration 15: Explore Different Levels of Learning in Urban Living Labs

By distinguishing these levels, ULLs can tailor monitoring, reflection, and evaluation methods and engage the right stakeholders in the most relevant learning activities.

KA 5.2. Reflexive Monitoring: A Dynamic Approach to Continuous Learning

Learning is an ongoing, adaptive process. Regardless of the topic or level, learning happens through continuous reflection and collaboration. One effective way to achieve this is through reflexive monitoring, a structured yet flexible approach built on a series of learning loops. Instead of following a rigid plan, stakeholders continuously review actions, interactions, and evolving dynamics to guide decision-making. These learning loops can be initiated whenever needed. Whether in response to a new challenge, an emerging opportunity, or a shift in urban dynamics. Reflexive monitoring offers an integrated approach that encourages learning within multi-actor groups or networks as well as institutional change in order to deal with complex problems. This monitoring approach is designed for projects that aim for systemic innovation, particularly in sustainable development.

While their initiation is flexible, each learning loop follows a structured sequence of key steps: Plan, Observe, Analyse, Reflect, Adapt, Document, Share. Though they share these common steps, learning loops can take many different forms depending on their purpose. They may focus on refining a single experiment, reflecting on the overall ULL process, or addressing a specific collaboration challenge among stakeholders.

The scale and duration of learning loops also vary. Some are small and short-term, lasting just a few hours, while others are larger, spanning weeks or months. Certain loops are recurring, such as a standard evaluation cycle for experiments or an annual reflection meeting to assess the overall ULL.

The key feature of the reflexive monitoring approach is that it shifts away from relying on a single large research or evaluation project. Instead, it functions as a series of ‘mini-research projects’ that collectively guide the future direction of a ULL process and its experiments (see illustration 16).

We identified seven activities to encourage continuous learning: 1) Foster a Learning Culture, 2) Plan what you Want to Learn, 3) Observe: Collect Data, 4) Analyze: Evaluate and Interpret Data, 5) Reflect: Learn from Insights, 6) Adapt: Apply Insights, 7) Document & Share: Capture and Disseminate Learning.

KA 5.3. Foster a Learning Culture

Aim

For a ULL to learn, a robust learning culture is essential.

How

Before initiating any learning cycle, create an environment where open reflection, curiosity, and collaboration thrive. This culture should encourage continuous feedback, adaptive thinking, and shared responsibility among all stakeholders. Emphasize trust, mutual respect, and openness to diverse perspectives (see also Key Activity 1).

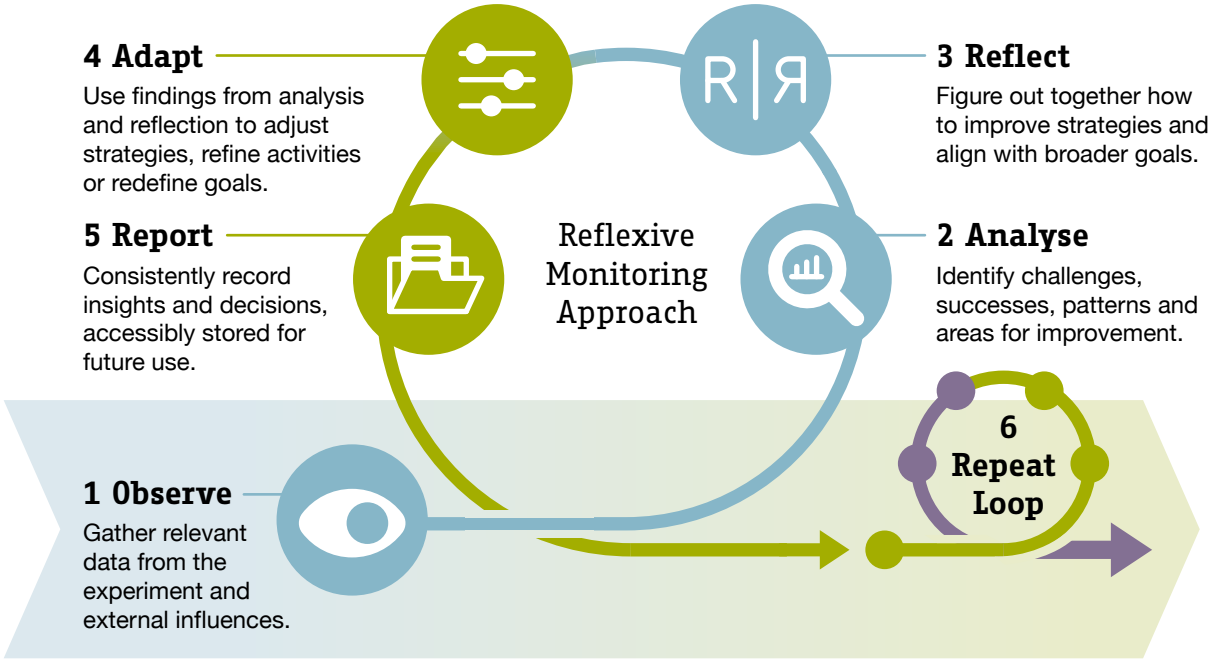


Illustration 16: A reflexive monitoring approach is based on multiple learning loops informing an ongoing process.

For academic researchers in particular, a reflexive monitoring approach redefines their role as active contributors who shape outcomes, rather than detached observers. Work with researchers to identify how they can contribute to learning loops in the ULL while preserving their impartiality and academic integrity.

KA 5.4. Plan What You Want to Learn

Aim

Set clear learning objectives and establish metrics to track progress.

How

- **Understand the purpose.** Start by reflecting on why you are learning. It may serve accountability, strategic improvement, operational management, policy influence, knowledge generation, or stakeholder empowerment.
- **Outline Learning Objectives.** Start by defining what factors want to be learned. Objectives should be clear but flexible, considering available resources and the outcomes they are aiming for. Make sure objectives align with the ULL's Mission Statement. Use approaches like the Theory of Change or Impact Pathways to map out what needs to be learned and how this is expected to happen.
- **Set Metrics and Track Progress.** Identify both quantitative and qualitative metrics that relate to the goals and can be used to monitor progress. Quantitative metrics could include things like the amount of CO_2 or NO_x reduction, while qualitative ones might focus on team dynamics or stakeholder engagement. Keep in mind that some long-term impacts (like policy shifts) may not be easily measurable, so be sure to also gather qualitative insights, such as stakeholder satisfaction and the creation of new partnerships. Depending on the size and maturity of the ULL a structured Monitoring Plan can be developed that captures both qualitative and quantitative data, yet remains flexible enough to adapt as new insights emerge.
- **Embrace Flexibility:** While metrics help track progress, it is important to maintain flexibility. ULLs thrive in adaptive environments, and success is not just about meeting predefined targets. Instead, it is about creating long-term, meaningful change. Stay focused on the learning objectives rather than rigid output or performance indicators (see also Key Activity 8 on page 146).

KA 5.5. Observe and Collect Data

Aim

Continuously track progress and gather relevant data to inform ongoing adjustments.

How

Monitoring is an ongoing process of tracking activities, progress, and outcomes to ensure the experiment remains aligned with objectives. It involves systematic data collection on key indicators, allowing for real-time adjustments as new insights emerge. Monitor things like activities, stakeholder interactions, and external influences using a mix of qualitative and quantitative methods. Employ tools like surveys, interviews, direct observation, and real-time monitoring systems (e.g. urban dashboards or participatory sensing) to ensure comprehensive data collection. This ongoing observation is vital for capturing real-time progress and informing necessary adjustments (see also Key Activity 8).

- **Select Appropriate Data Collection Methods.** Tailor your data collection methods based on what you need to learn. Track key activities, stakeholder interactions, and external factors using tools like surveys, interviews, direct observation, or data platforms.
- **Use Real-Life Monitoring Tools.** Incorporate tools like urban dashboards, participatory sensing, and AI-driven analytics for a dynamic, real-life view of progress. These tools provide a deeper understanding of how the project is evolving.
- **Ensure Ongoing Monitoring.** Monitoring should be continuous, not a one-time task. Regularly track developments and adapt strategies based on emerging insights. This allows for timely course corrections to stay aligned with objectives. See the RMA guide (Van Mierlo et al., 2010) for useful tools for continuous monitoring, such as utilizing a dynamic learning agenda.

KA 5.6. Analyze: Evaluate and Interpret Data

Aim

Identify patterns, successes, challenges, and areas for improvement.

How

Analyze the collected data to uncover trends, tensions, and bottlenecks. Distinguish between expected and unexpected outcomes, and assess whether objectives are met. The appropriate method depends on the learning objective and data available. Using structured evaluation methods, such as case studies and stakeholder interviews, help to turn data into actionable insights that guide further refinements.

KA 5.7. Reflect: Learn from Insights

Aim

Foster collective reflection to continuously improve strategies and align with broader urban transformation goals. Reflection extends beyond monitoring and analysis. It is about interpreting findings to refine strategies, improve future experiments, and drive systemic change.

How

Organize structured reflection sessions with project teams and stakeholders to discuss what is working, where challenges lie, and which assumptions may need revisiting. Encourage a safe, interdisciplinary dialogue that supports single-loop, double-loop, and triple-loop learning (see illustration 17). These reflection sessions are crucial for translating data into deeper understanding and for continuously refining strategies to drive systemic change.

↳ **Organize Regular Reflection Sessions.** Hold structured reflection sessions with the team and stakeholders to evaluate progress, identify challenges, and reassess goals and assumptions. Use these sessions to adapt strategies and improve alignment with overarching goals.

↳ **Encourage Double-Loop and Triple-Loop Learning.** Integrate single-loop learning for immediate problem-solving and double-loop learning to challenge underlying assumptions and explore new approaches. Promote triple-loop learning to foster deep reflection on the purpose and structure of innovation, leading to transformative changes in governance and urban development.

↳ **Support Adaptive Decision-Making.** Engage stakeholders in flexible, iterative learning processes using reflexive monitoring, questioning assumptions, and adjusting strategies based on both qualitative and quantitative data.

KA 5.8. Adapt: Apply Insights

Aim

Use the findings from reflection and analysis to adjust strategies, refine activities, or redefine objectives.

How

↳ **Integrate Lessons into Future Actions.** Reflective learning isn't a one-time activity. After evaluation, the real work begins. Now is the time to implement changes based on insights gained. Ensure the process is flexible to adapt quickly to new findings and adjust stakeholder engagement or project focus as needed.

↳ **Define Roles and Responsibilities.** To ensure successful adoption of changes, clearly determine who will take responsibility for which follow-up action. Stay proactive in managing the adaptation process to maintain momentum and relevance in the innovation efforts.

KA 5.9. Document & Share: Capture and Disseminate Learning

Aim

Ensure that insights and decisions are systematically recorded, accessibly stored and communicated for future use.

How

Document the key findings, decisions, and lessons learned throughout the learning cycle(s) using accessible formats, such as reports, presentations, or videos. Regularly update this documentation to reflect how insights have been applied and adapted over time. Sharing these learnings with all stakeholders supports transparency and accountability, while at the same time enhancing collective knowledge, inspiring future innovations across the ULL and beyond (see also Key Activity 7).

Reflective Questions:

- *What do stakeholders want to learn, and how effectively is the ULL in capturing those insights?*
- *Do all stakeholders have the same learning goals, or do they vary per person and organization?*
- *How can lessons learned shape our future experiments and strategic decisions?*
- *What feedback mechanisms can we establish to promote continuous learning and deeper stakeholder involvement?*

Triple-Loop Learning in Urban Living Labs

The Triple-Loop Learning framework describes three levels of learning that help individuals and organizations distinguish between different types of knowledge and improve their ability to adapt.

Single-Loop Learning: Improving Urban Solutions

Are we making the right adjustments?

Single-loop learning is about fine-tuning urban solutions without changing the bigger picture. It focuses on small improvements to increase efficiency and effectiveness. For example, a ULL installs smart lighting to reduce energy use. If the sensors are not working optimally, the team tweaks their sensitivity to improve performance.

How to do it: Keep refining solutions based on feedback. Optimize existing processes without changing core strategies.

Double-Loop Learning: Rethinking Urban Systems

Are we solving the right problem?

Double-loop learning challenges assumptions and explores new approaches instead of just improving what already exists. For example, a ULL testing smart lighting realizes that energy use is not the core issue, energy dependency is. This leads to exploring decentralized energy solutions instead of just refining the lighting system.

How to do it: Step back and ask whether the current approach tackles the real issue. Challenge assumptions and explore better alternatives. Be open to rethinking policies, priorities, and systems when needed.

Triple-Loop Learning: Transforming Governance and Culture

Are we making decisions in the right way?

Triple-loop learning rethinks how urban decisions are made, questioning governance, power structures, and community involvement. Instead of just improving policies, it asks: Who sets the agenda? Who gets a say? For example, instead of government-led urban planning, a ULL shifts to co-creation, where residents, researchers, and policymakers work together to define challenges and solutions.

How to do it: Go beyond improving processes: fundamentally transform how decisions are made.

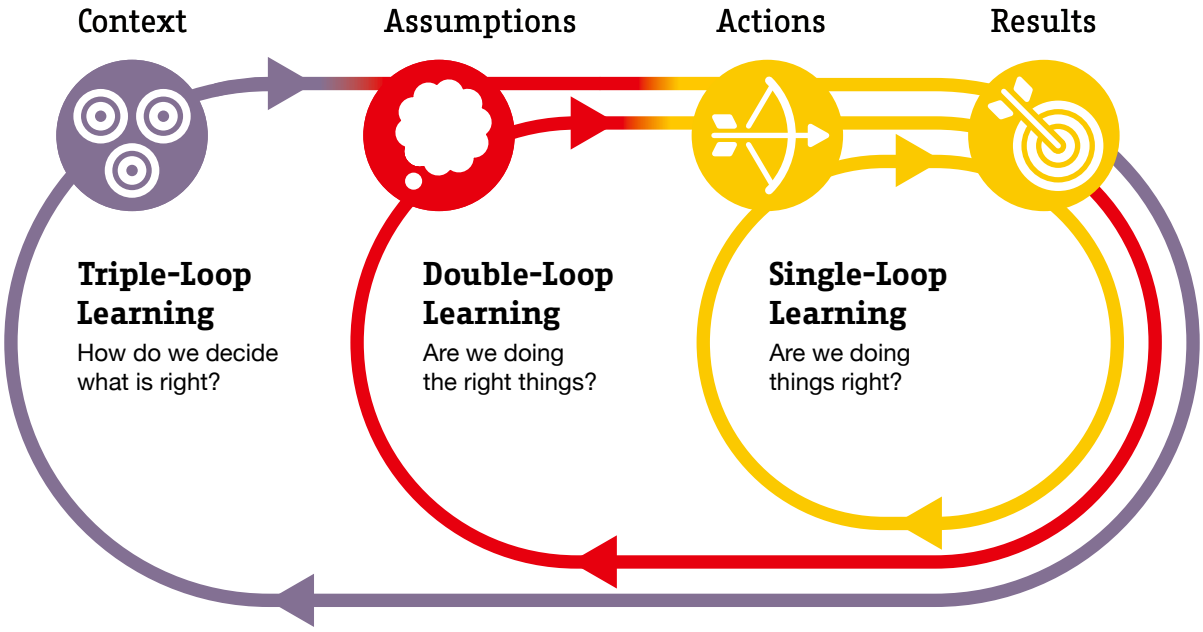


Illustration 17: Single, Double and Triple Loop Learning (Based on Argyris and Schön, 1978)

Case Example 9: Using a Dynamic Learning Agenda

Challenge

In a Community of Practice we explored new ideas and concepts for rethinking the development of old industrial sites, such as the NDSM Wharf and Westergasfabriek in Amsterdam. The goal was to move beyond profit-driven development and focus on development concepts preserving cultural heritage and local identity. The challenge was to avoid setting overly fixed objectives that might limit the flexibility needed to respond to new insights emerging during this exploration.

Solution

Together with stakeholders and researchers, we used a Dynamic Learning Agenda (DLA) to guide our work. A DLA balances openness with structure by co-creating a set of key learning questions at the start and focusing on what needs to be understood rather than focusing on delivering predefined fixed outcomes. By regularly revisiting and adapting these questions as new insights emerged, we used them to guide our reflections, adjust our actions, and capture learnings along the way. These provided a shared direction while leaving room for adaptation: some questions were answered, new questions emerged, and other questions were left behind.

How It Helped

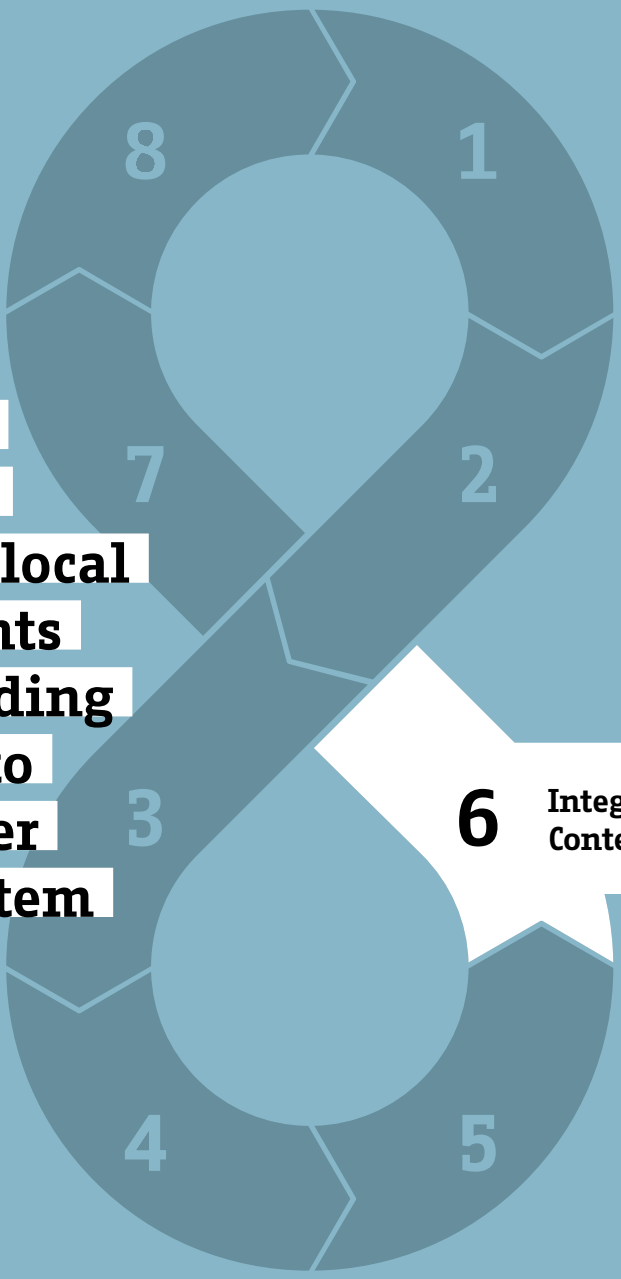
The Dynamic Learning Agenda fostered continuous reflection and adjustment, helping our group adapt to new insights, both on thematic learning topics (e.g. cultural value, alternative development models) and site-specific case challenges. Its use ensured that valuable learning was captured and translated into tangible outputs, while still allowing for new questions and directions to surface. This approach kept the work relevant to the practical challenges of the sites and strengthened collaboration between partners, as we navigated the complexity of balancing cultural preservation and urban development together.

Recommendations

“In a living lab, it’s not about locking in solutions upfront. The value lies in searching together: staying flexible, learning as you go, and keeping the process open for new directions.” (From the perspective of Tamara Metze, professor in Public Administration, TU Delft.)

Key Activity 6: Integrate and Contextualize

After evaluating an experiment's lessons in Key Action 5, now you must determine how the insights from the local experiments can contribute to systemic urban transformation and solving the urban challenge. One of the relevant issues is how the elements addressed in the local experiments are related to other elements of the overall urban system. The effective introduction of a successfully tested new technology may for instance be dependent on the implementation of new regulations.



Maximize long-term impact of local experiments by embedding results into the broader urban system

6 **Integrate and Contextualise**

KA 6.1. Overview of Possible Strategies

To ensure sustainable follow-up and structural impact, three complementary strategies are typically presented:

↳ **Deepening** – Embedding within the local context

↳ **Broadening** – Extending across sectors and domains

↳ **Scaling Up** – Expanding reach and influence

These strategies do not have to be applied in a fixed sequence, as sustainable urban transformation requires that all three are addressed. While certainly not mandatory, there is a common progression. Initiatives often start by ensuring something works well and is accepted locally (deepening). Then, you can explore how the innovation performs elsewhere or in other domains (broadening). Scaling up is then about expanding the influence of the innovation to a broader context (scaling up). However, in practice a scaled-up policy may trigger local deepening (reverse logic). Broadening may occur in parallel with deepening in different locations. And some ULLs may prioritize scaling (e.g. via national programs) even before local deep embedding is complete.

KA 6.2. Deepening – Embedding in the Local Urban Fabric

Aim

Ensure long-term adoption of experimental insights within the local urban ecosystem.

How

Deepening focuses on improving and institutionalising innovations locally. Rather than scaling outward, this strategy enhances the quality, cultural relevance, and local impact of experiments.

↳ Further refine solutions based on feedback and evaluation.

↳ Integrate results into local policy frameworks and municipal processes.

↳ Institutionalize innovations via local procedures, protocols, and collaborative structures.

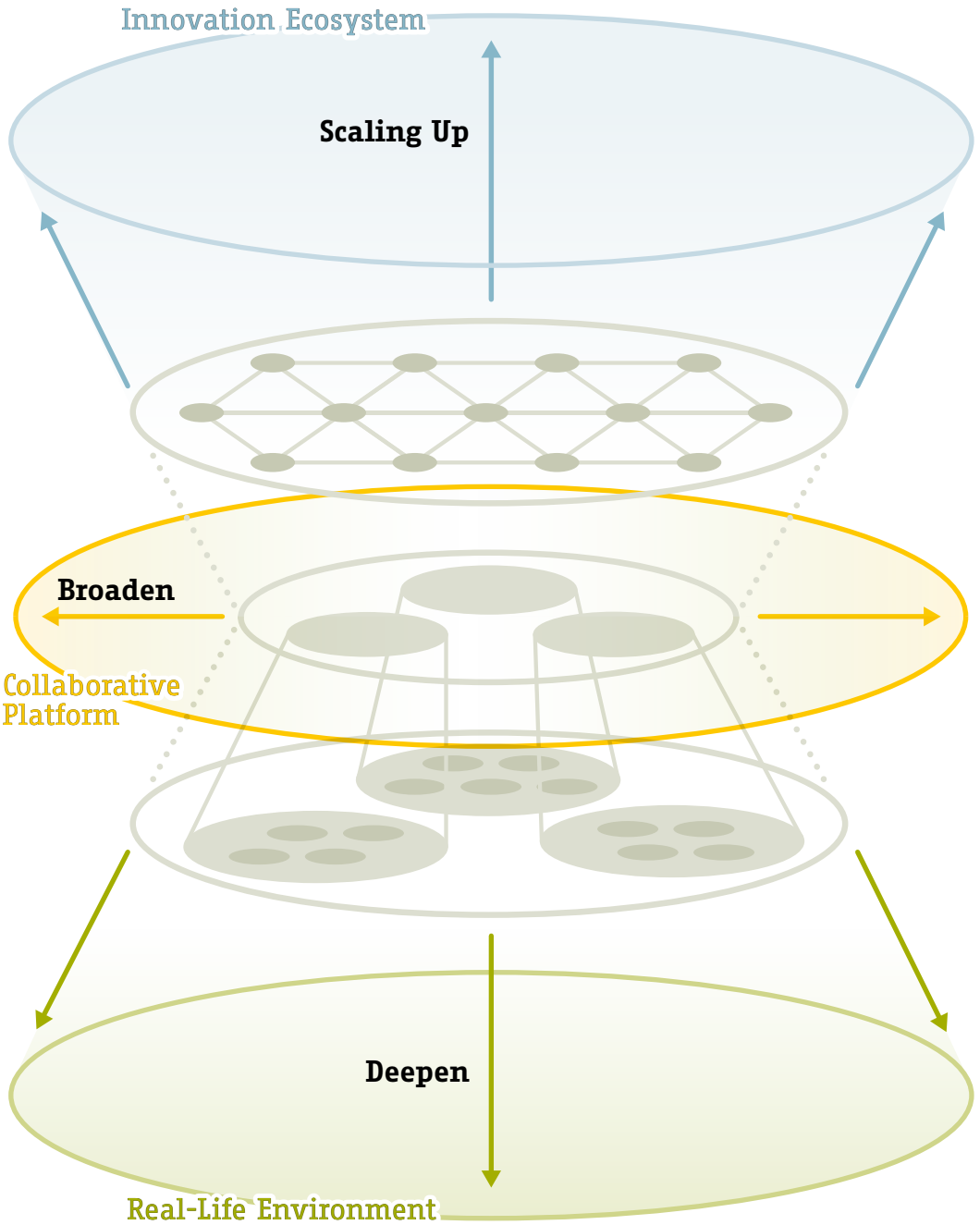


Illustration 18: Deepening, Broadening, and Scaling Up (Based on Van den Bosch & Rotmans, 2008)

↳ Strengthen collaboration with local actors (e.g. civil servants, residents, neighborhood organizations).

↳ Set up learning networks or local transformation coalitions to sustain momentum.

When to apply this strategy

↳ Often in the early stages of a ULL or after initial pilots

↳ When the solution is promising but still fragile

↳ When innovation works locally but needs more refinement

↳ In case of limited stakeholder alignment or lack of institutional fit

KA 6.3. Broadening – Extending to New Sectors and Contexts

Aim

Transfer successful insights to other domains, sectors, or communities.

How

Broadening involves translating successful experiments into other urban contexts or policy areas. Rather than simple replication, this strategy fosters cross-sectoral collaboration and knowledge exchange between various domains such as mobility, health, energy, and housing. It encourages systemic thinking and multi-domain solutions.

↳ Adapt innovations to different neighborhoods, user groups, or policy domains.

↳ Collaborate with partners from various sectors.

↳ Facilitate peer learning and exchange between districts, cities or projects.

↳ Co-create solutions with new stakeholders to explore relevance and transferability.

When to apply this strategy

↳ When local success and effectiveness of the experiment is evident

↳ When there is demand for the innovation, for instance shown by interest from other sectors or cities

↳ When the innovation has cross-sectoral value, for instance, when other sectors have similar problems that the innovation could address.

KA 6.4. Scaling Up – Increasing Impact and Reach

Aim

Expand the impact of successful experiments to city-wide, regional, national, or international levels.

How

Scaling up involves embedding effective solutions in formal structures, ensuring they influence systemic change beyond the local setting. This requires institutional backing, long-term funding, and alignment with strategic agendas, moving the innovation into mainstream practice.

- ↳ Integrate outcomes of experiments into urban development strategies or national programs.
- ↳ Collaborate with policymakers to formalize insights through regulation or planning tools.
- ↳ Establish sustainable financing mechanisms (e.g. subsidies, investment funds, public-private partnerships).
- ↳ Create supportive legal and governance frameworks for wider implementation.

When to apply this strategy

- ↳ There is a clear proof-of-concept and systemic buy-in
- ↳ There are positive experimentation results that align with broader policy goals
- ↳ There is institutional interest and political momentum, encouraging decision-makers and funders to support the innovation

KA 6.5. Other Follow-Up Actions

The following actions support all three strategies and help move from local experimentation to systemic urban change:

Determine Relevance of Experiments Across Contexts

↳ Assess whether lessons are locally specific or transferable.

↳ Compare experiment outcomes with the ULL's broader objectives and adjust insights for new contexts.

↳ Identify links between experimentation results and other urban sustainability goals.

Ensure Institutional Integration

↳ Relate outcomes to current governance, policies, trends, and frameworks.

↳ Partner with cities, researchers, businesses, and civil society to co-create future steps.

↳ Collaborate with public officials, thought leaders, and civic actors to translate insights into regulation.

Secure Long-Term (Financial) Support

↳ Align with current initiatives to maximize relevance and avoid duplication.

↳ Link insights to relevant funding programs and innovation strategies.

↳ Develop funding models such as grants, PPPs, or long-term investment tools.

Reflective Questions

Deepening

- *How can we ensure the experiment becomes a lasting part of local policy and practice?*
- *How can local stakeholders take ownership of the outcomes?*
- *What structures are needed to anchor the innovation locally?*

Broadening

- *In which other contexts can the insights of experiments be applied?*
- *What is needed to effectively transfer lessons across domains?*
- *How can cross-sectoral collaboration address urban challenges?*

Scaling Up

- *How can effective solutions be scaled to influence wider policy?*
- *Which policy tools or frameworks can support scaling?*
- *How can financial and institutional sustainability be secured?*

Case Example 10: Learning Across Cities

Challenge

How can ULLs learn from each other when they operate in different contexts, countries, and work on diverse solutions? This was the challenge faced by ATELIER, a project of eight European cities developing Positive Energy Districts. Each city set up an Innovation Atelier to experiment with new energy solutions ranging from underground thermal heat systems to a local energy trading system. The goal was to foster knowledge exchange on the development of these Innovation Ateliers across cities, but differences in local challenges and approaches made it challenging to compare progress and learn together. AMS Institute's task was to design a Monitoring & Evaluation (M&E) tool to track and compare the development of these Innovation Ateliers.

Solution

Traditional Key Performance Indicators are often not suitable to apply in ULLs because they emphasize predefined outcomes, while living labs thrive on flexibility and emergent results. Therefore, the key question was: How do you monitor ULLs without constraining their open-ended processes with rigid performance targets? As a solution, the developed M&E framework focuses on monitoring the conditions that enable success, rather than measuring fixed outputs. Six Key Components were identified as essential governance conditions for Innovation Ateliers:

- **(Sustainability) Mission.** What is the (sustainable) change the Innovation Atelier aims to contribute and how it aims to do this?
- **Value Proposition.** What products or services the Innovation Atelier offers to whom?
- **Strategic Coordination.** How is the Innovation Atelier embedded in local, cross-city, and cross-project decision-making processes?
- **Open Innovation Activities.** What the Innovation Atelier does and what are its resulting outputs and outcomes?
- **Learning & Knowledge Diffusion.** How the Innovation Atelier learns and how outputs are diffused?
- **Organizational Capacity.** How is the Innovation Atelier organized and what resources does it need?

How It Helped

Focusing on governance conditions rather than on specific outcomes allowed cities to compare their processes, despite their diverse contexts. The framework facilitated:

- **Cross-City Learning.** Cities exchanged practical insights on engaging citizens, influencing policy, and overcoming governance hurdles.
- **New Ideas & Self-Reflection.** Comparisons showed that what one city saw as a challenge was already implemented elsewhere, sparking new solutions.
- **Scalability & Long-Term Use.** The tool was adopted beyond the ATELIER project, integrated into AMS Institute's professional education program and the EU4Advice project, supporting governance development in other multi-stakeholder projects.

Recommendation

"Focus on monitoring and comparing conditions for success in ULLs, not just the outcomes. It keeps your process flexible while enabling meaningful cross-lab learning." (From the perspective of Juanita Devis, working with ATELIER.)

Key Activity 7: Disseminate Learnings

ULLs aim to turn experimental findings into actionable knowledge that informs policy, planning, and community initiatives. By embedding learnings into governance and business ecosystems, ULLs act as catalysts for systemic change. This involves shifting from one-way dissemination to interactive communication, where results are shared, discussed, and applied in meaningful ways.

A key challenge is communicating nuanced insights clearly so that they can be understood and acted upon by a broad audience. Focus on sharing results in ways that spark dialogue, are tailored to different audiences, and build long-term capacity for applying insights.

Ensure that insights are embedded in the urban ecosystem and used to shape urban strategies and decision-making

KA 7.1. Invoke Interaction

Aim

Move beyond passive reporting by engaging people in discussions or other activities to help interpret and build on results.

How

Organize roundtables, workshops, or learning sessions where stakeholders can review findings together. This helps stakeholders reflect on how the results apply to their own work or organization. Connecting these activities to strategic agendas and conferences boosts engagement and ensures deeper involvement.

KA 7.2. Tailor Communication

Aim

Ensure insights reach the right people in the right format, and that their feedback informs future ULL activities.

How

Customize communication to the needs of different stakeholders. Policymakers, for example, benefit from policy briefs, scenario analyses, and strategy documents, while urban planners may require technical reports, playbooks, and design toolkits. Communities and citizens engage more effectively with visual summaries, storytelling formats, and participatory events. Use a mix of formal and informal dissemination methods to enhance accessibility and ensure that knowledge reaches diverse audiences.

KA 7.3. Connect Communication to Decision-Making Timelines

Aim

Ensure results are fed effectively into relevant decision-making processes, like urban development plans and government strategies.

How

Understand decision-making processes and timelines for various stakeholders to share insights at the right time and in the right format. Establish feedback loops through continuous knowledge exchange (e.g. online platforms, advisory groups, city-wide networks) to facilitate ongoing learning and refinement. Organize interactive sessions, such as panel discussions, to deepen engagement and assess long-term impact.

KA 7.4. Build Capacity and Foster Institutional Learning

Aim

Use insights to develop the capacity of institutions and stakeholders to adopt and scale new insights.

How

Develop education and training programs for municipal staff and other key stakeholders. Identify champions to lead the dissemination process and integrate insights into professional development and educational curricula. Tailor these life-long-learning programs to meet the specific needs and contexts of professionals, empowering them to apply and scale the insights in their work.

KA 7.5. Use Lighthouse Stories

Aim

Build empathy and understanding, translating complexity into meaning. Stories preserve the *why* and *how*, not just the *what*, allowing knowledge to travel among teams, generations, or political cycles.

How

Highlight concrete, relatable success stories that demonstrate how the experiment made a difference — in someone's life, in a policy change, in a neighborhood transformation. These narratives (visual or verbal) are often more effective than abstract lessons, especially when communicating across silos or outside expert audiences. Start collecting potential stories during the experiment through interviews, observations, journaling, or short video diaries. Make sure that each lighthouse story connects back to the broader system goal — such as inclusion, resilience, sustainability — making the personal story part of the systemic narrative.

Reflective Questions:

- *How does the ULL ensure that knowledge is successfully transferred among all stakeholders?*
- *What are the best ways to make results accessible and actionable for different stakeholder groups?*
- *How can the ULL integrate experimental insights into long-term policies, governance structures, and community initiatives?*
- *What are possible Lighthouse Stories that can explain our results in a meaningful manner?*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Case Example 11: Anchoring the Community: The Energy Lab Annual Seminar

Challenge

In long-term ULLs, practitioners and researchers often work in their own 'bubbles,' focusing on their specific projects. This can lead to missed opportunities for collaboration and cross-pollination of ideas. In Amsterdam Zuidoost, a diverse urban district facing unique energy transition challenges, we needed a recurring moment to reconnect our network, strengthen partnerships, and generate new ideas together.

Solution

The Energy Lab Zuidoost's Annual Seminar was created as a dedicated event to unite all partners and stakeholders involved. Held every year on the last Thursday of March, it brings together partners from the municipality, knowledge institutes, local entrepreneurs, and residents. The program blends:

- ↳ Keynotes from local voices (e.g., social entrepreneur Otas Elum
- ↳ Panel discussions on lessons learned from 5+ years of collaboration.
- ↳ Student research presentations (plenary and poster sessions).
- ↳ Breakout workshops to generate ideas for new experiments.
- ↳ Optional outdoor bike tours to explore the neighborhood's history.

How It Helped

The seminar became more than an event. It has become a key part of the lab's rhythm. It strengthens the lab's network by fostering personal connections and building trust. It facilitates knowledge exchange between partners and generates fresh ideas for new research and experiments. What sets this seminar apart is its deep-rooted connection to the local context. Taking place for over five years now, the Annual Seminar ensures that the lab's activities stay closely tied to the everyday realities and challenges of the people and businesses in the district. Unlike typical energy transition conferences, which often focus primarily on policy or scientific research, this event bridges the gap between theory and practice by grounding discussions in the lived experiences of residents.

Recommendation

"Don't treat networking as a side activity—make it the heart of your lab work. An annual seminar can become a cornerstone for building relationships, sharing knowledge, and sparking new ideas." (From the perspective of Mark Kauw, working with the Energy Lab Zuidoost.)

Reference

You can find out more on the website of the Energy Lab Zuidoost:
www.energielabzuidoost.nl

Case Example 12: Mayor's Manual - Podcasting for Collaboration

Challenge

The AMS director and the director of Innovation of the Future Proof Assets Program of the City of Amsterdam sought to strengthen the collaboration between AMS Institute and the City of Amsterdam, ensuring it remained productive and impactful. However, when COVID-19 hit, in-person interactions ground to a halt, posing a significant challenge to maintaining dialogue and momentum. They needed a new approach to keep the conversation alive and foster ongoing collaborations with local stakeholders to address Amsterdam's urgent urban challenges.

Solution

Their response was to launch a podcast titled *Mayor's Manual*. Through a series of interviews, they engaged key figures from academia, government, and industry. Each guest was asked a central question: *"What do you need from a collaboration with AMS Institute and the City of Amsterdam, and what can we contribute to make it more meaningful?"* The conversations became a rich source of knowledge, offering a direct line to what different parties expected and how they envisioned working together.

How It Helped

What started as a workaround soon turned into a form of empirical research, providing valuable insights and recommendations. It catalysed several positive outcomes:

- **Practical Insights.** It surfaced valuable lessons from practitioners about the realities of working across sectors, leading to better mutual understanding.
- **Building Trust.** By giving stakeholders a voice, the podcast addressed scepticism around motives, bridging gaps between science, government, and industry.
- **Shaping Future Initiatives.** The insights informed the development of the TBL Infra project, followed by other large-scale initiatives.
- **Amplifying Conversations.** Beyond the podcast, the team produced a short film and a book, launching these resources globally to inspire leaders and decision-makers.
- **Embedding Collaboration.** It provided a foundation for further embedding collaborative approaches into the core processes of both AMS Institute and the City of Amsterdam.

Recommendation

"Collaboration needs to be part of our daily routines: an embedded practice rather than an occasional effort. A simple format like a podcast can break silos, build trust, and inspire action." (From the perspective of Sacha Stolp, Director of Innovation for the Future Proof Assets Program of the City of Amsterdam.)

References

Read the complete Mayors Manual or listen to their podcasts at mayorsmanual.org.

Key Activity 8: Monitor Systemic Impact

Evaluating the impact of a ULL is crucial for understanding how local experiments contribute to solving complex urban challenges. Assessing how the results of these experiments inform decision-making, drive policy changes, and influence real-world applications is key to determining the relevance and effectiveness of a lab. Impact evaluation helps assess whether the ULL achieves its learning and innovation objectives, shapes urban development, and delivers lasting value to both the city and its stakeholders.

Understand and evaluate the systemic impact of an Urban Living Lab

KA 8.1. Evaluating the Impact of a ULL

Impact refers to the scale and significance of change brought about by specific actions or phenomena, and how these changes affect people or situations. However, measuring the impact of a ULL is not simple. ULLs are designed to do more than just run isolated experiments. Their aim is to influence broader policies and contribute to long-term urban goals and seek systemic change, which makes measuring their impact inherently complex. ULLs focus on social, environmental, and systemic changes, requiring a nuanced and tailor made approach. A ULL could change many things: from researchers gaining new insights from an experiment, to stakeholders learning new skills in co-creation sessions, to citizens experiencing new policies. Several factors influence the evaluation of ULLs:

Multiple Stakeholder Perspectives

Success and impact can mean different things to different stakeholders. Policymakers may focus on economic growth, residents on quality of life, and businesses on commercial success. For example, a new bike lane might be seen as a success by cyclists but a failure by shop owners who lose parking spaces. Measuring a single, unified impact is nearly impossible.

Context Dependency

Local conditions play a key role in the success of ULLs. An innovation that works in one city may not work elsewhere due to different regulations, cultures, and infrastructures. A smart waste management system using AI might succeed in Amsterdam but struggle in a city with less digital infrastructure or public trust in technology.

Time Lag & Long-Term Effects

Many innovations take time to show their full impact, like environmental benefits or shifts in behavior. The effects of urban innovations often take years to materialize. A green rooftop project, for example, would not show its full impact on reducing heat and improving biodiversity until years later. Short-term pilot successes do not guarantee lasting change, as real impact may only be seen through policy adoption, behavioral shifts, or systemic integration.

Unpredictable Adoption & Network Effects

Innovation impact is rarely linear. Adoption depends on external factors like market readiness, regulation, or unforeseen societal changes. Even successful pilots may fail at scale, while some innovations reshape entire industries unexpectedly. A car-sharing initiative might fail because people prefer private cars, but years later, rising fuel costs and traffic restrictions could make it the preferred option.

Attribution Complexity

Urban systems involve many actors (public, private, and community), making it hard to pinpoint exactly what caused a particular outcome. If air pollution drops after a clean mobility project, was it due to the new electric buses, tighter emissions laws, or simply fewer cars on the road post-pandemic?

Unclear Success Metrics

Unlike financial Key Performance Indicators, urban innovation impact is harder to quantify. While some metrics (e.g. CO_2 or NO_x reduction, adapted traffic flow) are measurable, broader social and behavioral shifts (e.g. community engagement, urban resilience) are more difficult to capture. For instance, how do you measure whether a new public square truly makes people feel safer and more connected?

KA 8.2. Three Evaluation Questions

As we see, evaluating the impact of a ULL is inherently complex. Yet complexity does not mean we can't evaluate — it means we need to approach evaluation differently. Rather than trying to impose standardized metrics, ULLs can use a set of guiding questions to structure their thinking, clarify what kind of impact they are looking for, and decide how to evaluate it in a context-sensitive way. These questions do not "solve" the problem of complexity — instead, they help navigate it by breaking it down into manageable, meaningful components.

↳ **Efficiency** – Are we using our resources wisely to produce meaningful outputs?

↳ **Effectiveness** – Are we achieving the intended outcomes of our activities?

↳ **Impact** – Are we contributing to positive long-term, systemic change in the urban system?

Together, these impact questions help ULLs reflect on the holistic impact of their activities, ensuring that not only immediate outputs are considered, but also how well those outputs contribute to lasting and meaningful outcomes and urban change. Each impact question can be answered for different levels, related to the levels of learning as discussed in Key Activity 5. Ideally, evaluation is not a one-off exercise but a recurring activity that informs strategy and decision-making.

KA 8.3. Develop a Holistic Perspective

Aim

Create an overall perspective of the Innovation Ecosystem including all relevant stakeholders, the current situation of the ULL and the Collective Platform, and the Experiments that have taken place in the Real-Life Environment.

How

Establish an overarching overview of the complete system that is part of the total ULL Multilevel Framework. Evaluate the following aspects:

- **Objective.** What urban challenge is the ULL addressing? (See Key Activity 1).
- **Strategy.** How is the ULL tackling this challenge? (See Key Activity 2).
- **Inputs.** What resources enable the ULL? E.g. funding, expertise, infrastructure, trust, shared ambition, learning culture. (See Key activity 2).
- **Activities.** What activities take place? E.g. experiments, workshops, co-creation, community building, networking. (See Key Activities 3 and 4)
- **Outputs.:** What tangible results are produced? Publications, tools, prototypes, partnerships. (See Key Activity 5)
- **Outcomes.:** What systemic value is created? Intellectual, environmental, social, financial, and relationship capital. (See Key Activity 6)
- **Impact.** What systemic urban impact does the ULL contribute to? (Key Activity 8)

Facilitate interactive stakeholder sessions to link inputs to long-term outcomes and impact. Monitor outputs, outcomes, and broader change through learning loops (see Key Activity 7). This mapping exercise is not only a key part of impact assessment

but also a valuable tool for continuous learning and improvement. It can serve as both a tracking tool to visualise progress and a planning tool to guide future actions and strategic decisions.

KA 8.4. Evaluate Efficiency

Aim

Assess how efficiently resources (time, money, people, expertise) have been invested relative to the results produced.

How

Understanding how efficiently resources have been invested is key to determining how a ULL can remain cost-effective, scalable, and sustainable. An efficient ULL maximizes impact while minimizing efforts, making urban change more viable in the long run. To evaluate efficiency, reflect on whether resources are used optimally, activities can be streamlined, and if the ULL has the capacity to continue beyond the initial project phase. Use tools such as cost-benefit analyses, resource use measures, and time tracking to assess performance. If inefficiencies arise, adjustments may be needed to improve sustainability and ensure the ULL's long-term viability.

KA 8.5. Evaluate Effectiveness

Aim

Determine the extent to which your ULL's activities meet their intended objectives and contribute to meaningful urban change.

How

Rather than focusing solely on outputs, effectiveness measures whether desired long-term outcomes (such as reduced air pollution, improved mobility, or strengthened community engagement) are being realized. Regular evaluations, including stakeholder feedback, before-and-after assessments, and quantitative indicators, help track progress. If outcomes do not align with expectations, refining strategies and adapting approaches becomes essential.

KA 8.6. Evaluate Impact

Aim

Determine the long-term systemic impact generated by the ULL.

How

Impact reflects the scale and sustainability of a ULL's long-term influence on the urban system. It examines whether the lab's interventions lead to enduring societal change, in the form of increased environmental sustainability, or improved public health. Sustainable change means that impact continues beyond the initial intervention, influencing policies, behaviors, and urban development strategies.

To measure this, long-term monitoring and policy adoption assessments are essential. Establishing baseline data before the intervention allows for accurate comparisons over time, while periodic reviews ensure the ULL adapts to evolving urban dynamics. Understanding the broader context by differentiating between direct impact and external factors, helps attribute change accurately, and refines future initiatives. Establish mechanisms for recurring periodic reflection, such as annual reviews or follow-up studies, to assess how the results of ULLs continue to influence urban development, governance, and community engagement. Embedding this process within city planning frameworks helps ensure that lessons from ULLs inform future policies.

Reflective Questions:

- *How does the ULL contribute to broader urban policies and innovation strategies?*
- *Are the intended impacts and outcomes defined at all levels of the ULL?*
- *Are evaluation methods capturing both short-term and long-term effects?*
- *What are the different perspectives of stakeholders when defining success and effectiveness?*
- *What activities ensure that insights from monitoring are actively used to improve future activities?*

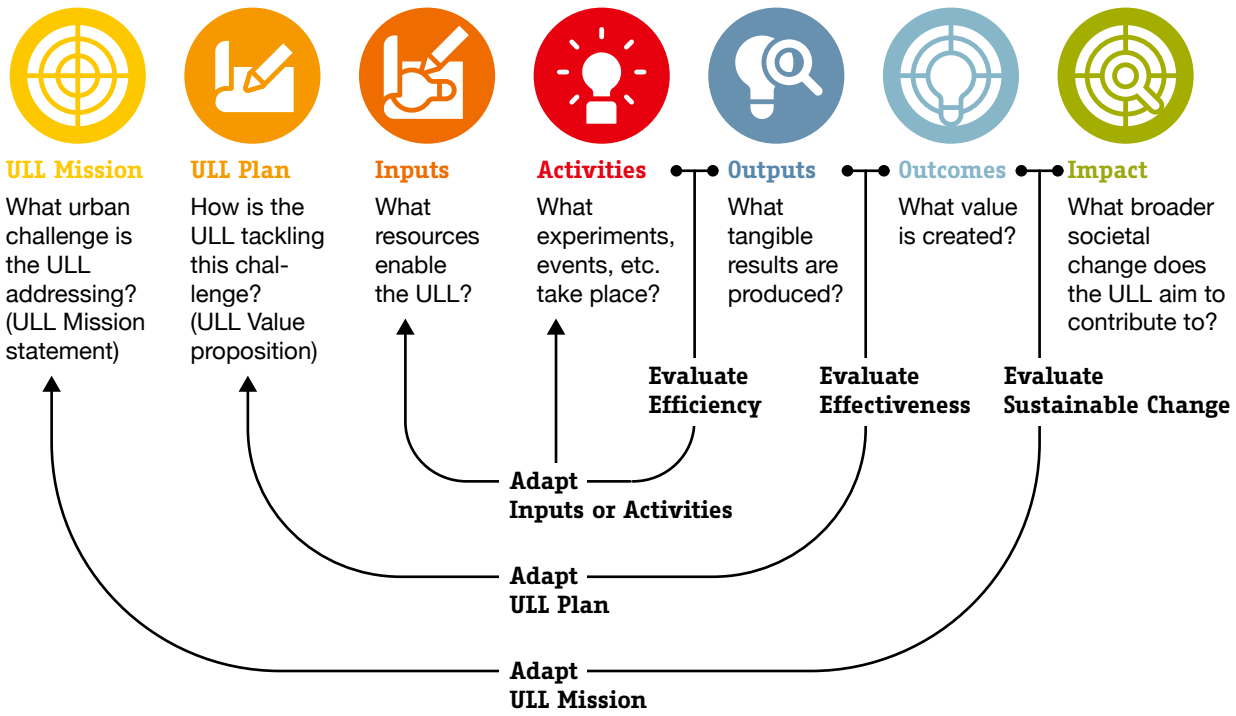


Illustration 19: Evaluating the Impact of an Urban Living Lab.

Case Example 13: Impact Outcomes for Climate Resilient Cities

Challenge

Determining the measurement criteria for a ULL needs to be adapted to each specific situation. How can the overall impact and value of a ULL be measured effectively?Challenge plaatsen onder de titel van de case.

Solution

A proposal of a framework that can be applied to measure the impact of a ULL, was developed in a programme focused on Climate Resilient Cities. For this project, the following impact categories were determined:

Adaptation

↳ The extent to which the innovation or approach has been adjusted based on research findings and experimentation.

↳ Measurement: Number of locations where adaptation and resilience measures were implemented by the municipality

Policies

↳ The impact of the Living Lab on policy changes, procurement standards, or regulatory frameworks.

↳ Measurement: Number of regulations, policies, or vision documents adapted based on research

Sustainable Jobs

↳ Employment opportunities created through Living Lab projects.

↳ Measurement: Number of new positions at the municipality or in climate resilience fields

Public cost savings

↳ The reduction in public expenditures resulting from Living Lab innovations.

↳ Measurement: Euros saved, categorized by scale (1: <100K€; 2: <1M€; 3: <10M€; 4: >10M€)

New partnerships

↳ Collaborations and partnerships established through the Living Lab's connector role.

↳ Measurement: Number of new, meaningful partnerships created for the municipality

Environmental Impact

↳ The measurable reduction in emissions or materials usage as a result of implementing the Living Lab's innovations.

↳ Measurement: CO_2 or NOx reductions (in metric tons, kilotons, or megatons)

How It Helped

Collectively defining objective criteria to measure impact, helps to clarify hidden expectations of stakeholders, encouraging them to clarify objectively what they expect from the ULL, and how each of them defines success and impact.

Recommendation

"Take the time to sit down with the key partners in the ULL and use the collective expertise of all partners to collectively define the impact categories relevant to your lab." (From the perspective of Gerben Mol, Program Developer Climate Resilient Cities)

Chapter 6: Coordinating an Urban Living Lab

The Urban Living Lab Coordinator plays a key role in ensuring that initiatives remain relevant, inclusive, and strategically aligned with broader urban missions.

What Does it Take to Coordinate an Urban Living Lab?

Coordinating an Urban Living Lab means enabling a collaborative, adaptive process that connects innovation to systemic change. It requires a professional who is not only skilled and knowledgeable but also empathetic, reflective, and strategically aware. Unlike many innovation projects, ULLs are adaptive by nature, constantly evolving in response to new insights and shifting contexts. Coordinating a ULL means guiding this dynamic process toward meaningful, systemic change. The Urban Living Lab Coordinator (LLC) plays a key role in ensuring that initiatives remain relevant, inclusive, and strategically aligned with broader urban missions. This coordination role is not defined by a job title or fixed organizational position. Instead, it requires providing whatever the lab needs to keep moving forward.

What Does a Living Lab Coordinator Do?

The LLC enables the ULL to function effectively and ensures that local experiments contribute to larger urban challenges. Key responsibilities include:

- Designing and implementing ULLs based on the Urban Living Lab Way of Working (ULLWOW) to address real-world urban challenges.
- Aligning local experiments with urban strategies and policies, ensuring they contribute to systemic change.
- Facilitating stakeholder engagement and co-creation, promoting ownership and shared direction.
- Bridging knowledge and practices across disciplines, sectors, and various ULLs.
- Communicating transparently, documenting processes, results, and sharing insights.
- Supporting learning and capacity building, through training, workshops, and reflective evaluation.

These responsibilities require balancing project management and technical coordination with human-centred facilitation.

What Skills Does a Living Lab Coordinator Need?

Effective coordination of a ULL depends on a combination of management skills, interpersonal qualities, and strategic abilities.

Core Skills & Competencies

- **Systems Thinking.** Understanding complexity, interdependencies, and long-term impact.
- **Facilitation & Co-Creation.** Designing and guiding collaborative processes involving a broad range of stakeholders.
- **Innovation & Experimentation.** Running innovation projects, iterating, and learning from real-world experiments.
- **Communication & Knowledge Sharing.** Translating developed insights across stakeholder groups and supporting mutual understanding.

Mindset & Soft Qualities

- **Empathy.** Listening actively and speaking the language of diverse participants.
- **Adaptability & Resilience.** Navigating uncertainty, dealing with setbacks, and anticipating change.
- **Value-Driven Decision-Making.** Making choices based on shared values such as sustainability, equity, and liveability.
- **Reflection & Learning Orientation.** Embracing learning loops and encouraging a reflective ULL culture.

Strategic Abilities

- **Strategic Alignment.** Connecting local experiments to overarching systemic challenges and urban goals.
- **Stakeholder Management.** Navigating power dynamics, building mutual trust, and fostering long-term collaboration between partners.
- **Leadership & Empowerment** Taking initiative while enabling others to lead.
- **Cross-Scale Thinking.** Linking local experiments to system-wide transformation.

How Does a Living Lab Coordinator Operate?

The coordination of a ULL is not a fixed task list—it's a dynamic and responsive process. The LLC must constantly adapt to the phase, context, and needs of the lab. At times, they may be building partnerships; at others, troubleshooting technical challenges, facilitating dialogue, or embedding results into policy. By flexibly shifting roles, the LLC helps the lab remain responsive, impactful, and grounded in both practice and strategy. Common roles of a Living Lab coordinator are presented on the next page.

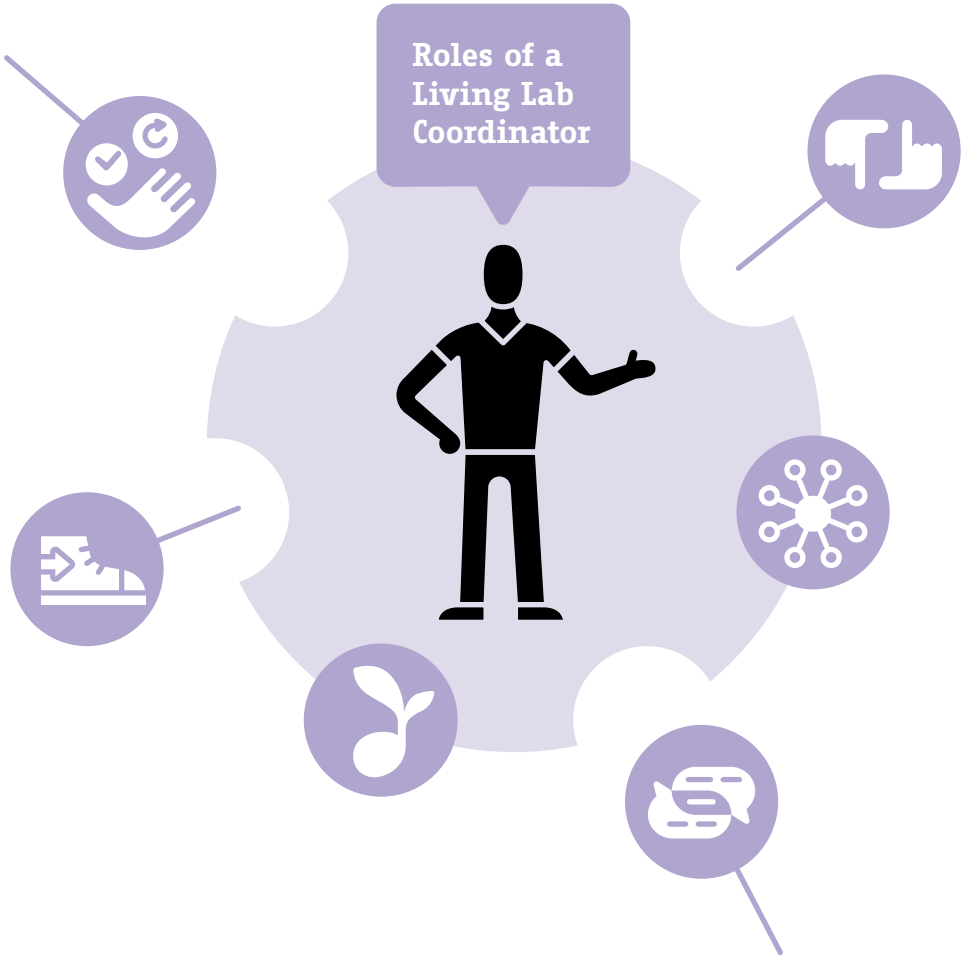


Illustration 20: Roles of a Living Lab Coordinator

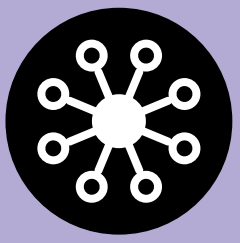
Roles of a Living Lab Coordinator

Initiator

Identifies urban challenges, mobilizes partners, and sets the groundwork for a ULL. This role is crucial in the early phase of the ULLWOW when framing the problem and forming the collaborative ecosystem.

Facilitator

Designs and moderates co-creation sessions, supports inclusive participation, and nurtures mutual understanding. This role is central during the ideation and design phases of ULLWOW, where participatory methods are key.



Networker

Builds bridges across sectors, aligns interests, and connects the ULL to external initiatives. This role supports synergy-building and cross-lab learning, essential in ULLWOW's integration and dissemination phases.

Interpreter

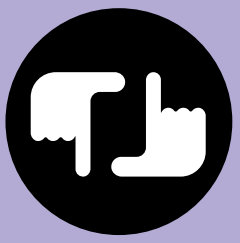
Translates between scientific, business, policy, and community perspectives. This role is for instance important when negotiating between academic partners and making research findings actionable.

Developer

Leads development, prototyping and testing of new solutions. This role is mainly active during the experimentation phase, translating ideas into real-life local interventions within the urban context.

Reframer

Analyses outcomes, draws out lessons, and links results back to broader policy or mission goals. This role supports reflection, evaluation, and scaling, reinforcing the ULLWOW principle of continuous learning and adaptation.



Chapter 7: Glossary

Agreeing on terminology helps stakeholders communicate clearly and avoid confusion, particularly when new partners join.

Words Matter

This glossary provides key terms used throughout this publication. While you may use your own definitions, we recommend agreeing on terminology at the start of your project to help stakeholders communicate clearly and avoid confusion, particularly when new partners join.

- **Actionable Insights.** Practical and data-driven learnings derived from monitoring and evaluation that inform decision-making, policy development, and scaling strategies.
- **Actor.** An individual, group, or organization that does something in the urban system — they take action, make decisions, implement change, or influence outcomes.
- **Co-Creation.** A participatory approach in which stakeholders actively contribute to the design, development, and implementation of urban innovations, ensuring that solutions meet real-world needs.
- **Collaborative Platform.** An organizational structure that connects stakeholders across disciplines, enabling knowledge sharing, experimentation, collective learning and scaling of urban innovations.
- **Complex Urban Challenge.** A multifaceted issue within urban environments that requires integrated social, technological, and policy innovations to drive sustainable change.
- **Experiment.** A structured activity designed to develop and validate new ideas, accelerating learning and generating insights through real-world testing and experience-based learning.
- **Experimentation Process.** A structured approach to testing new ideas, policies, or technologies in a controlled but real-world setting, allowing for iterative improvements based on feedback and data.
- **Field Lab.** A real-world testing environment where innovations are developed, tested, and refined in collaboration with stakeholders. Field Labs often house multiple pilot experiments as part of broader innovation efforts.
- **Innovation.** A new or improved idea, product, service, or process that creates value by addressing a need or solving a problem.
- **Innovation Ecosystem.** A network of interconnected stakeholders who influence and contribute to urban transition processes through their individual and collective actions.

↳ **Iterative Learning.** A continuous cycle of experimentation, reflection, and adaptation that ensures Urban Living Labs remain flexible and responsive to emerging challenges and opportunities.

↳ **Living Lab.** User-centered open innovation eco-system based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings.

↳ **Living Lab Coordinator.** A designated facilitator responsible for overseeing activities within an Urban Living Lab, ensuring effective stakeholder collaboration, experiment execution, and knowledge exchange.

↳ **Location-Based Urban Living Lab.** An Urban Living Lab centered on a specific geographic location, such as a building, street, or district.

↳ **Multi-Stakeholder Collaboration.** A process in which diverse groups—including governments, businesses, academia, and communities—work together to co-create solutions in Urban Living Labs. This collaboration fosters shared ownership and maximizes impact.

↳ **Pilot.** A small-scale preliminary study conducted to evaluate feasibility, duration, cost, and potential impact before broader implementation. In Living Labs, these are typically referred to as "experiments" rather than "pilots," as Living Labs often consist of multiple interconnected experiments rather than standalone pilots.

↳ **Real-Life Environment.** A physical or virtual environment (e.g. a street, building, or digital platform) where new ideas and solutions are tested and developed under real-world urban conditions.

↳ **Reflexive Monitoring.** A Monitoring, Evaluation, and Learning (MEL) approach that emphasizes continuous reflection, adaptation, and stakeholder engagement to enable systemic learning and innovation.

↳ **Scaling Mechanism.** The process by which successful innovations from Urban Living Labs are expanded, replicated, or adapted to different contexts to create broader impact.

↳ **Stakeholder.** An individual, group, or organization that has a stake — meaning an interest, concern, or potential impact — in what happens in the urban system, whether or not they actively intervene.

↳ **Systemic Innovation.** A transformative approach to innovation, in which technological, social, economic, and policy changes are addressed collectively and in mutual relationships. Unlike isolated innovations, systemic innovations aim for long-term, sustainable impact.

↳ **Thematic Urban Living Lab.** An Urban Living Lab focused on addressing a specific urban challenge within a defined thematic area, such as energy, mobility, or circular economy.

↳ **ULL Multilevel Framework.** The conceptual foundation of the Urban Living Lab Way of Working that illustrates how learning, scaling, and impact happen across different system levels.

↳ **Urban Challenge.** A sustainability-related issue within an urban transition process that requires coordinated interventions and innovative solutions.

↳ **Urban Living Lab (ULL).** Collaborative setting where local stakeholders co-create, test and evaluate innovative solutions in real-life environments to address complex urban challenges, with the goal of scaling or replicating them across the city.

↳ **Urban Living Lab Way of Working (ULLWOW).** AMS Institute's iterative innovation method that supports practitioners in effectively developing and managing Urban Living Labs to address urban challenges.

↳ **Urban Transition Process.** A long-term systemic transformation of the urban environment aimed at achieving sustainability goals through integrated social, technological, and policy innovations.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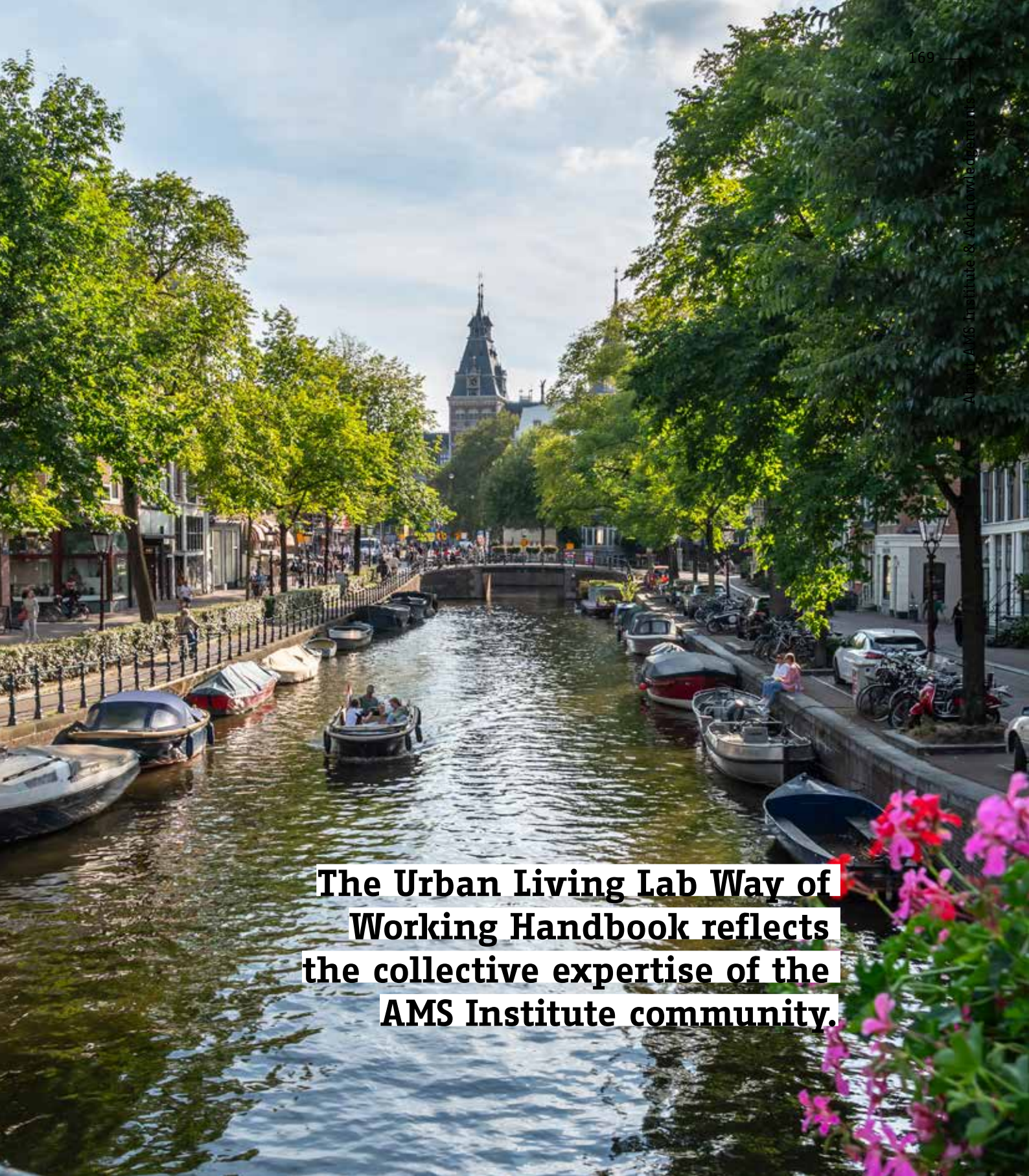
Chapter 8: About AMS Institute & Acknow-ledgements



The Urban Living Lab Way of Working Handbook reflects the collective expertise of the AMS Institute community.

Amsterdam Institute for Advanced Metropolitan Solutions

Amsterdam Institute for Advanced Metropolitan Solutions (AMS Institute) was founded in 2014. It is a unique transdisciplinary urban innovation ecosystem, rooted in its founding institutes TU Delft, Wageningen University & Research, and MIT, and shaped by its partnership with the City of Amsterdam.

The mission at AMS Institute is to accelerate the development of science-based solutions to make cities resilient, regenerative and just. The work of AMS Institute challenges the status quo and redefines what was once thought impossible.

As a thought leader, catalyst, and learning community, AMS Institute develops groundbreaking scientific insights, imaginative solutions, and impactful technologies. AMS Institute addresses critical and interconnected challenges in mobility, energy, circularity, digitalization, food and climate adaptation to accelerate the development of tangible metropolitan solutions.

AMS Institute orchestrates innovation for urban transformation by providing a collaborative space where cities and leading tech universities learn and experiment together. AMS Institute acts as a springboard for the next generation of urban innovators. Immersed in Amsterdam as a real-world lab, AMS Institute researches, designs and shares metropolitan solutions for cities around the globe.

Connect via

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Acknowledgements

The Living Lab Way of Working Handbook reflects the collective expertise of the AMS Institute Urban Living Lab Community, including practitioners, students, researchers, and other partners. The handbook is meant to serve as a living document, continuously evolving through new insights and contributions, bridging the gap between theory and practice.

The handbook draws from real-world experiences of Urban Living Lab coordinators and has been developed, refined, and validated as a collaborative effort. It will be used in professional training programs organized by AMS Institute and its partners, serving as both a practical guide and a foundation for discussion.

We invite you to tailor the ULL Multilevel Framework and the ULLWOW approach to your own context, combining it with your specific expertise and insights. In doing so, you help advance the Urban Living Lab Way of Working and contribute to lasting urban transformation.

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