



University Lab of Labs for Transformative Societal Innovation

Articulating collaborative and inclusive learning communities through shared R+D+i agendas among European regions

MUTUAL LEARNING COMMUNITIES ROADMAP LEARNING(S) FROM THE ULALABS EXPERIENCE

This publication is a result of

Work Package 3 Activity 5: Learning Communities Roadmap

Formal Title for the deliverable:

WP3.R2- Learning Communities Roadmap



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PUBLICATION INFO

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ACKNOWLEDGEMENT

WE WOULD LIKE TO THANK ALL PARTICIPANTS FOR THE TIME AND KNOWLEDGE SHARED. THE RESPONSIBILITY FOR THIS REPORT, INCLUDING ANY ERRORS OR OMISSIONS, RESTS SOLELY WITH THE AUTHORS

NOTE ON USE OF AI

MS Copilot has been used to edit language, grammar, and structure of this report.

PUBLISHER

UiS Scholarly Publishing Services

• for this edition: ULALABS• for the texts: the respective authors• for the images: the respective authors



ULALABS WEBSITE https://www.ulalabs.eu/

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UNIVERSITY LAB OF LABS FOR TRANSFORMATIVE SOCIETAL INNOVATION

Developed by:











Funded and supported by:





About the ULALABS project

The Ulalabs project is a collaboration between four European universities, all part of the ECIU (European Consortium of Innovative Universities), and stakeholder partners belonging to their regional ecosystems. The project is financed under the Erasmus+ KA220-HED - Cooperation partnerships in higher education (KA220-HED) call with the ID - KA220-HED-000157489 - University Lab of Labs for Transformative Societal Innovation.

The ULALABS project is co-financed by the European Union. The views and opinions expressed in this publication are those of the author(s) only and do not necessarily reflect those of the European Union or the Spanish Service for the Internationalisation of Education (SEPIE). Neither the European Union nor the Granting Authority can be held responsible for them.

About the ECIU University

The European Consortium of Innovative Universities, ECIU is a network of 14 universities united by a common profile of shared beliefs, interests, and mutual trust. The ECIU was founded in 1997, and the name underlines the European dimension of a selected group of entrepreneurial universities.

The ECIU University is one of the 41 prestigious European University Alliances that are part of the European Universities initiative. This initiative brings together universities to address societal challenges and skills shortages faced by European countries. The university alliances test different models of the concept of European Universities and examine its potential to transform higher education. The European Universities Initiative was piloted between 2019-2022, and will be fully rolled out and scaled up under the next Erasmus programme 2021-2027.



FROM CONCEPT TO PRACTICE



IMPLEMENTING THE BASE DEFINITION OF LEARNING COMMUNITIES

This publication concludes **Work Package 3 - Learning Communities Roadmap** and provides a methodological description and discussion on how to identify, articulate and activate Learning Communities within and across European regions, contexts and thematics. The report highlights the experiences, key learning points and practical insights and provides a step-by-step roadmap to facilitate the replication of the ULALABS Learning Communities model and experience.

It summarizes and discusses the methodological choices of WP3 activities and initial activities of WP4 with an aim to document and reflect on how we moved from the initial conceptual definitions of Inclusive Transformative Mutual Learning Communities towards a framework for the operationalization of these learning communities. Thus,

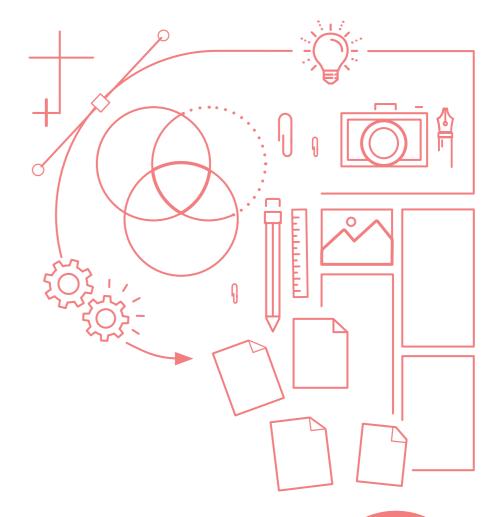
what this report reflects on is the planning and working phases between conceptualization and the launch of the learning communities in the pilot. We reflect on the lessons learned from the various activities conducted, hoping to offer guidance for other initiatives seeking to adopt similar approaches. In doing so, we aim to contribute to a broader methodological framework for scaling urban sustainability transformation experiments through critical and reflexive learning.

ULALABS is a project that attempts to devise and test processes for mutual learning that result in transforming practices. A project where diverse actors come together to co-create knowledge, challenge assumptions, and build the capacities needed for more sustainable and inclusive urban futures.

At the beginning of the process the project partners envisioned and defined a five-stage planning phase that included the following actions:

- i. Agree on key conceptual definitions
- ii. Map regional actors and ecosystems
- iii. Identify regional and shared challenges
- iv. Co-creation of Shared Learning Agenda
- v. Development of the Learning Toolkit structure and syllabus.

The activities conducted in the various stages were however, quite eclectic and responsive to the contexts and time frames of the process. This iterative methodological approach has been important and helped to not only focus on outcomes, but also pay attention to the process and the stakeholders' needs, considerations, and expectations along the way.





ROADMAP + CONTENT STRUCTURE

Base definition

presents and discusses the conceptual framework for what we call **Inclusive Transformative Distributed - Mutual Learning Communities**. This framework provides the guiding principles for what the learning communities need to take into account on a general level.

BASE DEFINITION MAPPING THE COMMUNITY

Collaborative Mapping of Regional ecosystems and stakeholders

discusses the activities related to mapping the different regional ecosystems and stakeholders connected to the experimentation spaces from Barcelona, Linköping, Enschede, and Stavanger that participate in the ULALABS project. Co-identification of Local and Shared challenges

focuses on the co-creation activities conducted together with key regional stakeholders to identify local and shared challenges and proceed to define them and include them in a shared collaborative Board.

LOCAL &
\$HARED
CHALLENGES
IDENTIFICATION

SHARED

R+D+I

AGENDA

Co-Creation of Shared R+d+i Learning Agenda

Based on the shared challenges and needs, this step focused on the co-creation of the proposed Shared R+D+i Agenda, incorporating and updating the shared vision developed in WP2.

Co-development of Learning & Experimentation Toolkits

Methodological reflections on WP4 (Activity 1 and 2) that focus on the establishment of a syllabus structure and learning toolkits that will capacitate the learning communities to tackle the challenges in the pilot.

LEARNING & EXPERIMENTATION TOOLKITS

PILOT

Pilot Implementation

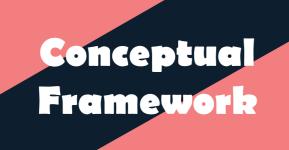
I he completion of the previous steps will preparand equip the ULALAB Learning Community tackle the proposed Pilo Challenges.

The diagram above demonstrates the five-step Roadmap. Accordingly, the publication is structured following the same order:

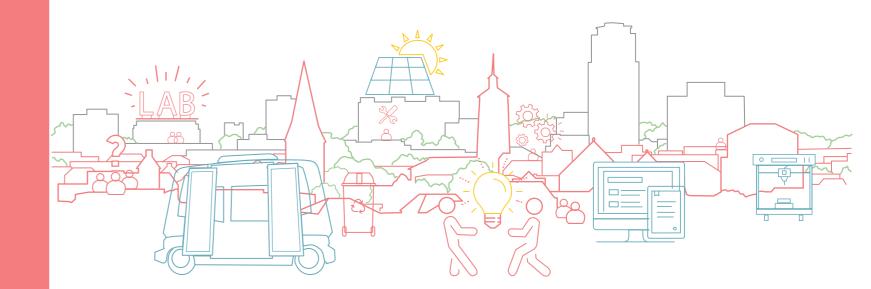
- **Section 1** presents and discusses the conceptual framework for what we call 'Inclusive Transformative Distributed Learning Communities'. This framework provides the base definition and guiding principles for the learning communities.
- **Section 2** discusses the activities related to collaborative mapping with the regional ecosystems and stakeholders connected to the experimentation spaces from Barcelona, Linköping, Enschede, and Stavanger area as well as the activities conducted to identify local and shared challenges.
- **Section 3** discusses the development of the shared vision and Agenda for the learning communities to be established in the pilot (WP5).

- **Section 4** includes methodological reflections on WP4 early activities that focus on the establishment of a Learning Toolkits syllabus and structure that will provide the foundation for the learning communities.
- **Section 5** discusses our overall reflections on the mentioned activities and the learning outcomes from these processes.
- **Section 6,** briefly outlines the way forward as the project moves to the pilot phase.

It is our hope that this roadmap, and its key learning points, can serve as a meaningful inspiration to other urban experimentation spaces and regional innovation ecosystems.



THE EMERGING ULALABS LEARNING COMMUNITY



The ULALABS project aims to address the urgent need for transformative approaches to urban sustainability, especially in light of the European Union's ambitious climate and innovation agendas. Cities are increasingly becoming the focal points for addressing the 2030 Agenda, and the challenge is not only to generate innovative solutions but also to scale and adapt them across diverse cultural, institutional, and geographic contexts. One of the initial tasks in WP3 was to develop a theoretical and methodological base definition of Learning Communities, grounded in the concepts of **Transformative Learning and Mutual Learning Communities** (MLCs).

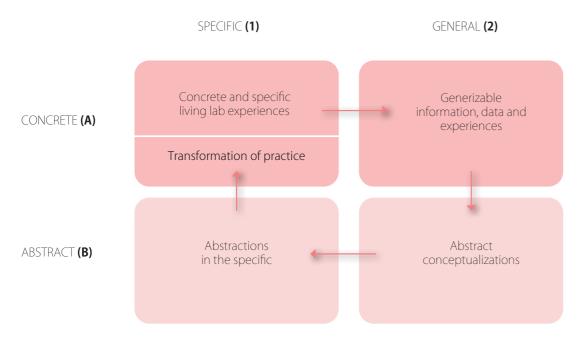
We argue that many attempts at knowledge transfer and replication fail to account for the complex contextual realities of urban transformations. Instead, we propose a shift toward **learning-centered approaches** that emphasize the cognitive and social processes through which knowledge is interpreted, adapted, and applied. Drawing on adult learning theory, particularly Jack Mezirow's concept of transformative learning, we highlight the importance of critical reflection, meaning-making, dialogical engagement, and contextual adaptation in enabling change.

More info on the Base Definition of the Learning Community



TRANSFORMATIVE DISTRIBUTED MUTUAL LEARNING COMMUNITIES

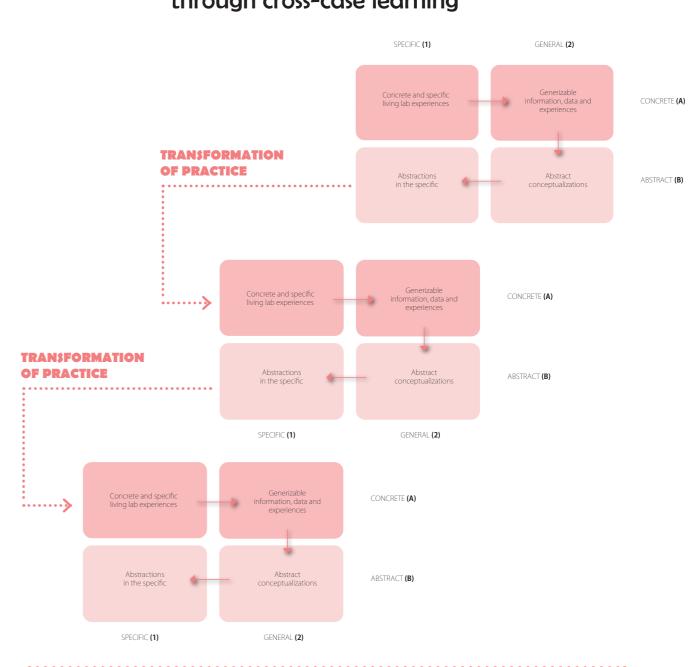
Transformative Learning framework



At the heart of our approach is the process of de-contextualization and re-contextualization (Scholl et al., 2022). Knowledge and experiences from one Living Lab must be abstracted from their original context and reinterpreted in new settings through collaborative reflection. This process is not linear but iterative and relational, requiring active engagement across the "sending" and "receiving" ends of the learning exchange. We use the metaphor of translation to illustrate this dynamic: just as a translator must understand both source and target cultures, so too must learning communities facilitate mutual understanding and meaning-making across diverse urban contexts.

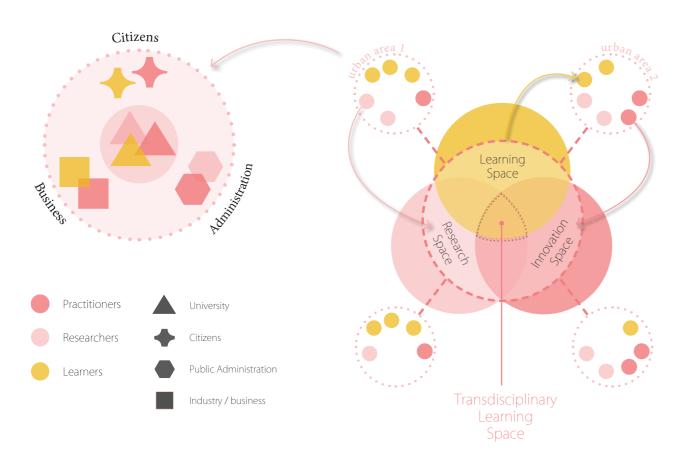
Based on these theoretical traditions, we present our transformative learning framework that underpins the ULALABS methodology (Figure 2). This framework maps the journey from specific, context-bound experiences (A1) through generalization and abstraction (A2, B2), and back to new applications in different contexts (B1 \rightarrow A1). Each step is mediated by critical reflection and dialogue, ensuring that learning is not merely the transfer of information but a process of meaning-making that leads to transformation of practice. We combine this with the concept of adaptive cycles (Davoudi et al., 2012) to emphasize that a new learning cycle begins with each transformation of practice.

Adaptive transformative learning cycles through cross-case learning



The diagram above provides an overview of iterative adaptive learning cycles involved in the transformative learning. It demonstrates the journey towards a transformation of practice (as a desired transformative learning outcome) from specific, context-bound experiences (A1) through generalization and abstraction (A2, B2), and back to new applications in different contexts (B1 \rightarrow A1).

Mutual Learning Communities



To operationalize this learning model, we draw on the concept of 'Distributed Mutual Learning Communities' (DMLCs) (Stoll et al., 2006; Wilson, 1998). These communities are envisioned as cross-regional networks of practitioners, researchers, and stakeholders who engage in shared learning processes. Unlike traditional 'Professional Learning Communities' (PLCs) or 'Communities of Practice' (CoPs), DMLCs emphasize distributed control, mutual accountability, and the co-creation of knowledge. They are designed to function across physical and virtual spaces, leveraging digital tools to support collaboration while recognizing the importance of place-based learning environments.

In addition to our theoretical contributions, we highlight the institutional, personal, and pedagogical benefits of implementing MLCs. For insti-

tutions, these include enhanced stakeholder engagement, increased visibility, and contributions to local and global sustainability agendas. For learners, MLCs offer opportunities for skill development, interdisciplinary collaboration, and personal growth. For the learning process itself, MLCs promote adaptability, creativity, and the crossing of disciplinary and epistemic boundaries.

We acknowledge the many operational challenges of implementing DMLCs. These include short-term inefficiencies, lack of centralized control, and the unpredictability inherent in decentralized systems. Yet, we believe these challenges are outweighed by the long-term benefits of fostering resilient, adaptive, and inclusive learning ecosystems.

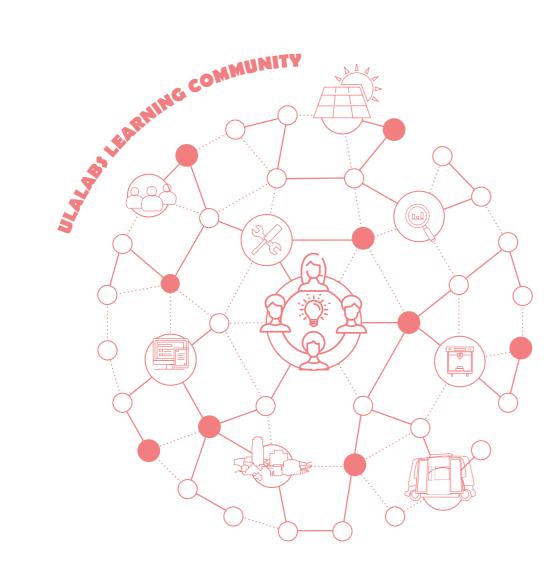
INCLUSION IN INTERSECTIONAL GENDER TERMS: A FRAMEWORK FOR LEARNING COMMUNITIES

The other central element of our approach is the acknowledgement that inclusion is a foundational aspect that should not just be an affixed buzzword. Inclusion, in its most robust and transformative sense, should not be reduced to the mere incorporation of diverse individuals into pre-existing structures based on stereotypes. When understood through the lens of intersectional gender theory, inclusion becomes a dynamic, relational and political practices aimed at dismantling structural inequalities and reconfiguring the terms of participation, belonging, and recognition. For the ULALABS Learning Communities model, which seeks to foster equitable and sustainable collective learning processes across different European contexts, articulating inclusion in intersectional gender terms provides a vital foundation for creating socially just environments that are attentive to the complexities of lived experiences, including political complexities.

In this sense, inclusion entails acknowledging that identity does not simply consist of given data, but it is rather a "political point of departure" (Alcoff, p. 431,1988), and accordingly that individuals are

situated within overlapping systems of power and disadvantage, (and privileges), and thereby affected by a whole variety of implicit or explicit discriminatory strategies that need to be confronted and tackled in participatory contexts such as learning communities for them not to be reproduced. It is not enough to "add" women or LGBTQIA+ individuals to existing educational or organizational practices. Instead, inclusion must engage in a critical transformation of the conditions that have historically excluded from these spaces and practices certain bodies, voices and knowledges.

While representation is an important starting point to avoid discrimination, inclusion in intersectional gender terms extends far beyond numeric or colorful diversity. An inclusive space or practice is not defined solely by the presence of women, migrants, racialized people, or disabled individuals. Rather, it speaks of a space and practice where diversity shapes the rules of procedure, the modes of engagement, the learning tools and dynamics, the linguistic frameworks, and the epistemological assumptions of the —each time anew— given community.

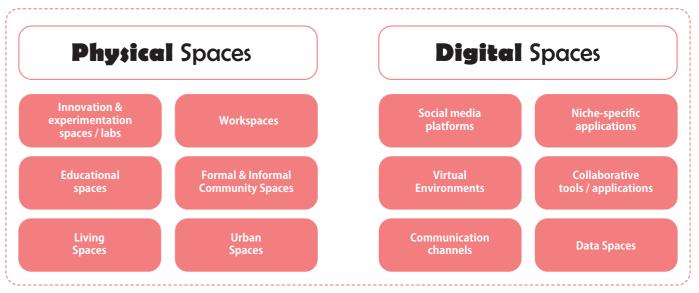


This understanding invites a shift from integration, where marginalized individuals are expected to adapt to dominant norms and thereby further marginalized in so-called participatory processes that stress neoliberal logics of exclusion (Antonucci et al., 2022), to participatory reconfiguration, where the norms themselves undergo revision and challenge. In the context of Learning Communities, this means fostering learning environments where individuals and collectives standing with different positionalities, that is, occupying different politically shaped locations, make use of their capacity to create meaning. Individuals and collectives holding different power shaped identities and claiming different privileges must be welcomed in learning spaces and practices. Moreover, their situated knowledges are considered indispensable to the ongoing learning process and to the therefrom delivered results.

As mentioned before, identity understood in intersectional terms does not refer to fixed biologically given attributes. Rather, it is relationally, historically and socially shaped in a process affected by privileges and power. Gender norms are contextual, and they vary across regions, generations and institutions. Furthermore, they are constantly reestablished through resistance, negotiation, and transformation. They are learned and unlearned by collective experiences, and, at the same time, they constitute learning processes.

In practice, this means that inclusive Learning Communities must pay close attention to the ways in which gender, along with race, class, and age among other axes of discrimination, is being enacted and experienced within each context. Are women, trans or non-binary people taking up speaking roles in meetings? If not, what does it

ULALAB\$ Learning Community Arena



imply to presuppose that they should? Are black or elderly people feeling safe and represented in the materials and practices of the community? If not, what actions should be taken for such insecurity to cease? Are caregiving responsibilities, often unequally distributed along gender and age lines, considered when scheduling participatory activities? These questions are not supplementary but central to the success of inclusive, intersectional community-building.

When fostering participatory Learning Communities, inclusion needs to be understood as an ongoing, self-reflexive process instead of a fixed, predetermined outcome. In this way, inclusion is not simply an attribute of the process but rather, a structural part of the learning process. Thus, inclusion requires continuous revision, critical individual and collective self-assessment and openness to feedback. From an intersectional gender perspective, inclusion is never fully given beforehand nor fully achieved. Instead, it becomes when there is commitment to dynamically practice in response to emerging needs.

This means that Learning Communities must incorporate mechanisms for accountability and care (Arora-Jonsson, 2024) as a crucial procedure to avoid the reproduction of discriminatory relational patterns of participation, especially when engaging in public policy decision making and when addressing governance issues. Inclusive Learning Communities must be actively open to regular check-ins, participatory evaluation, transparent conflict resolution, and an ethics of listening. Inclusion is not solely about avoiding or even correcting exclusion. Rather, it is about fostering relational practices of mutual recognition, welcomed interdependence, and shared responsibility.

Taking into account these intersectional gender considerations, the ULALABS model of Learning Communities should integrate inclusion as a transversal axis across all states of implementation and, in particular, when the Pilot is launched. The operative roadmap for implementation of the project in other regions would benefit from in-

cluding foundational practices such as the identification and validation of community members to the articulation of common goals, the facilitation of dialogue and engagement, and the affective evaluation of impact. Some examples of practical strategies to be tried out and tested along the process are the following:

Co-designing Spaces Involving community members and / or stake holders in recurrently shaping the norms and frames of participation. Providing Care acknowledging the materiality of affective labor entailed in inclusive community-building. Mapping Positionalities creating the required mechanisms to under stand the specific intersectional identities and power dynamics oper ating in the collective. STRATEGIES FOR INCLUSION Co-creating reflexive Tools encouraging time and space for self-assess ment, narrative critique and power measure ment. Providing Care addressing linguistic, digital, physical, tempo ral, and cultural barriers to full participation.

Defining and practicing inclusion in intersectional gender terms allows individuals and collectives to imagine and enact ways of being together based on difference. It is an opportunity to resist homogenizing practices, to appreciate complexity, and to avoid marginalizing the needs and visions of those most often epistemically silenced. For the ULALABS initiative, it opens the possibility of building Learning Communities that are not only more diverse, but also more just, more participatory, and more attuned to the material and affective realities of our interdependent lives.

Mapping the Community

COLLABORATIVE MAPPING OF REGIONAL ECOSYSTEMS & STAKEHOLDERS

The ULALABS project proposal is centered on a transformative approach to urban innovation by positioning universities as central actors in distributed, place-based ecosystems and understanding this role and the responsibilities that it entails. A cornerstone of this effort is the creation of the ULALABS Ecosystem Map, developed through a participatory and iterative process that visualizes the emerging ULALABS Learning Community and its interconnections across the four European regions. This mapping exercise, conducted under Activity A2 of WP3, offers valuable insights into how ecosystem mapping can support systemic innovation, stakeholder engagement, and the operationalization of the distributed Living Lab, the Emerging Lab of Labs.

THE 4 REGIONS

City of Stavanger

(Rogaland county)

The city of Stavanger on the southwest coast of Norway, where UiS is located, is the third largest metropolitan area in Norway and is considered its energy capital.



Cities of Linköping & Norrköping (County of Östergötland)

Linköping University has campuses in the two largest cities in the county of Östergötland, Linköping and Norrköping, which form the fourth largest metropolitan region in Sweden.

City of Enschede

(Twente region)

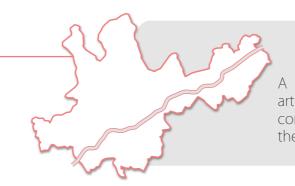
The city of Enschede where the UT campus is located and the broader Twente region are recognized as key hubs of innovation of the eastern part of the Netherlands.



B30 region

(Barcelona Province)

A key industrial and innovation territory articulated along the B30 highway and comprised of 23 municipalities where the UAB Bellaterra campus is located.



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UNIVERSITY OF TWENTE.



FROM CONCEPT TO PRACTICE

A LEARNING-CENTERED APPROACH

The ULALABS ecosystem mapping process is grounded in the core principles of the project; transformative and mutual learning communities. Rather than merely cataloguing actors and assets, the mapping process emphasizes how knowledge is socially and cognitively processed, transferred, and applied across different contexts. This shift from information sharing to learning is critical for scaling learning experiences in Living Lab and other experimentation spaces in a meaningful and context-sensitive way.

The mapping methodology is designed to be both rigorous and adaptable. It began by defining the scope of the exercise and by identifying and categorizing key actors according to the established criteria. It then proceeded with collecting data on their attributes and interactions and finally visualizing the results using the collaborative visualization platform, KUMU. The process was iterative, involving work among partners but also importantly work with stakeholders during the local workshops in each partner region. The synthesis of the results and the overall reflection were also done collectively during various online and in-person meetings and workshops. The resulting ecosystem map needs to be updated on a regular basis to reflect the evolving nature of the Learning Community.

KEY COMPONENTS

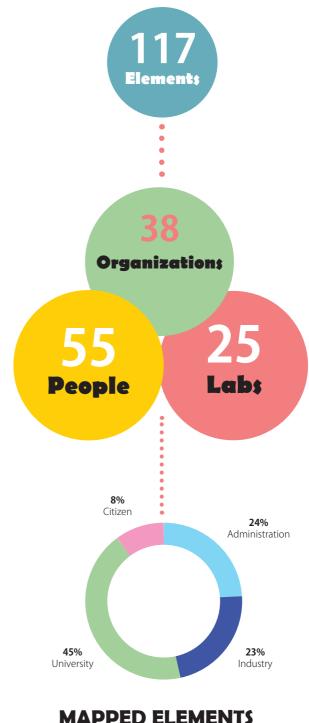
The ULALABS ecosystem map is structured around three main typologies,

- 1. People
- 2. Labs
- 3. Organizations

each with a detailed set of attributes and metadata. These include sector affiliation (aligned with the quadruple helix model), thematic focus, skills, motivations, networks, and connections. This rich set of information allows for both quantitative and qualitative analysis of the ecosystem. An interesting feature of the map is the use of visual tags and attributes to classify each element's role within the ecosystem and help with readability and usability. These include roles that span diverse categories such as "Challenge Identifier," "Facilitator," "Co-Creation Enabler," "Citizen Access Point," and "Scaling & Commercialization Actor." These roles were co-created with partners and stakeholders and provide an understanding of how different actors contribute to the ecosystem's overall function. As for the ecosystem structure, the map also categorizes types of interactions between mapped elements into four main groups:

- Experimentation & Knowledge Development
- Collaborative Structures & Partnerships
- Governance & Organizational Models
- Data & Infrastructure Sharing.

These categories reflect the diverse ways in which actors interact and collaborate, from formal governance arrangements to informal knowledge exchange.







Challenge Identifier

Facilitator

Co-Creation Enabler

Citizen Access Point

Knowledge Holder

Technical Provider

Governance Actor

Scaling & Commercialization Actor

MAPPED ELEMENTS

DISTRIBUTION

within the current ecosystems. While the strong presence of academic institustrategies in future phases.

ULALAB\$ LEARNING COMMUNITY MAP



Learning Community Attributes

- LABS
- Organizational
- Collaborative
- Experimentation
- Shared Infrastructure
- Scaling & Commercialization Actor
- Challenge Identifier
- Facilitator
- Co-Creation Enabler
- Citizen Access Point
- Knowledge Holder
- Technical Provider
- Governance Actor
- Academic
- Administration
- Industry
- Citizen



The mapping process also revealed the existence of current regional silos, with limited interconnection between actors within and between different regions. However, it simultaneously highlighted the potential for cross-regional collaboration, which is central to the ULALABS vision of the distributed "Lab of Labs." The map serves not only as a diagnostic tool but also as a strategic instrument for identifying new partnerships, aligning resources, and fostering trans-local innovation.



Interact with map ULALABS Web Portal



UAB OPEN LABS

CADEMI



<u>UAB Open Labs WEBSITE</u> [INNOVATION LAB + MAKERSPACE]

The UAB Open Labs network is a series of Open Innovation Laboratories located on campus for the development of ideas and projects that promotes collaboration, innovation and knowledge transfer between research staff, business or social organizations, students and citizens.

- Activity
 [Ideation / Prototyping / Testing]
- Thematics
 Innovation, Co-creation, horizontality
- Technologies
 Scanning tools, Virtual Reality, Digital Manufacturing,
 Recording and editing audio tools, IoT, GNSS
- Communities
 CORES (Sustainable and Smart Cities, Mental Health,
 Cultural Heritage, Education), Focus groups (Virtual-reality)
- Motivation
 Networking with other labs and stakeholders on a local and european level, co-creation processes.

Prototyper Facilitator Technical Provider

IMAGE TYPE II LAB

+ New Beld

Lessons Learned

The ULALABS mapping methodology offers several key lessons for other regions and initiatives seeking to build or strengthen innovation ecosystems:

- 1. Start with Learning, Not Just Listing: By framing the mapping process around learning rather than inventory, ULALABS ensures that the map is not just a static representation but a dynamic tool for capacity building and transformation.
- 2. Map with the Community: The integration of local workshops and transnational co-creation sessions ensures that the map reflects the lived realities and aspirations of stakeholders, fostering ownership, transparency and trust.
- **3. Design for Flexibility and Evolution:** The map is treated as a living document, that needs to be continuously updated to reflect new insights, relationships, and actors. This approach supports long-term relevance and adaptability.
- **4. Visualize Roles and Relationships:** The use of attributes and interaction types adds depth to the map, enabling users to understand not just who is involved, but how they contribute and connect to each other.

- **5. Leverage Digital Tools Thoughtfully:** The use of platforms like MIRO for data collection and KUMU for visualization demonstrates how digital tools can enhance collaboration and accessibility, especially in distributed projects.
- **6. Integrate with Broader Context:** The ecosystem map is not an isolated deliverable but is integrated into the ULALABS web portal as a key element. It is also linked to other project outputs such as the Challenge Board and Learning Toolkit. This ensures strategic coherence and usability.
- 7. Monitor and Reflect: The mapping process includes built-in mechanisms for validation, feedback, and iteration. This reflexive approach enhances data quality and supports continuous improvement.

The ULALABS ecosystems mapping activity exemplifies how strategic ecosystem mapping can support the development of inclusive, resilient, and learning-oriented innovation ecosystems. By visualizing the diversity of actors, their roles, and their relationships, the map provides a foundation for collaboration, experimentation, and systemic change. It also serves as a model for other regions and institutions seeking to operationalize mutual learning communities and integrate Living Labs and other experimentation spaces in the pursuit of sustainable urban transformations.

As the project moves into its pilot phase, the map will continue to evolve, capturing new connections and insights. Its integration into the ULALABS web portal ensures that it remains a visible and accessible resource for stakeholders, researchers, and policymakers alike. Ultimately, the ULALABS ecosystem map is more than a tool—it is an attempt at systemic thinking about innovation, one that is grounded in learning, collaboration, and shared purpose.

IDENTIFICATION OF LOCAL AND SHARED CHALLENGES

One of the ULALABS project's main aims is to transform universities into drivers of systemic, place-based innovation by embedding challenge-based methodologies into learning, research, and collaboration on a regional level. Central to this ambition is the development of the Strategic Challenge Board that integrates the challenges identified in the four partner regions that the emerging Lab of Labs could potentially tackle. This ambition led to the development of two interlinked instruments:

- 1. the Thematic Challenge Board
- 2. the Operational Challenge Board

Both boards were co-created through participatory workshops involving academic institutions, regional stakeholders, industry and societal actors across the four participating European regions. Together, the two boards serve as both a diagnostic and strategic framework for guiding the evolution of ULALABS as a distributed "Lab of Labs".

The process of creating these boards is not merely technical or administrative, it is a collaborative and exploratory exercise that helped articulate shared priorities, surface and highlight local needs, and build trust among participants. The boards were foundational tools for the development of ULA-LABS Shared R+D+I Agenda, and they offer valuable insights for replication in other contexts.

From Mapping to Co-Creation: A Participatory Methodology

The challenge identification process was structured around several phases. It began with an initial analysis of regional ecosystems and experimentation spaces, followed by preparatory work among partners using collaborative tools (like MIRO) to set up the initial Board structure. Local workshops were then held in each partner region, where stakeholders helped identify further challenges and validate existing ones. In parallel, it was an opportunity to map existing skills, knowledge gaps, and individual motivations with respect to these identified challenges and the emerging learning community. These findings were synthesized and validated during a transnational workshop, resulting in the final version of the two Challenge Boards.

This iterative and participatory approach ensures that the identified challenges are not imposed top-down but emerge organically from the lived realities and aspirations of the participants involved in the ULALABS Learning Community and the co-created Shared Agenda (see next section). It also highlights the role that universities can play as regional facilitators for co-creation, rather than mere providers of expertise, opening up the ground for discussion and debate on creation of shared knowledge. The two Challenge Boards are presented in continuation:

A. Thematic Challenge Board

The Thematic Challenge Board is structured into four levels: a single overarching mission, twelve grand challenges, thirty-two strategic challenges, and thirty-one specific challenges. The grand challenges span diverse domains such as energy models, organic and material resources, urban mobility, water cycles, digitalization, cultural heritage, and well-being. Each grand challenge is supported by strategic challenges that define key domains of intervention/focus. These are further refined into specific challenges—concrete, actionable questions that reflect real-world problems and opportunities within concrete contexts. Example of specific challenges include

ways to increasing composting rates, promoting energy communities, and designing inclusive housing solutions among others.

This layered structure allows for both high-level strategic alignment and localized experimentation. It also reflects a holistic understanding of sustainability, integrating environmental, technological, and social dimensions and highlighting the inherent complexity present in urban processes.

Consult the full board ULALABS Web Portal



B. Operational Challenge Board

While the Thematic Board focuses on what specific challenges to work on, the Operational Challenge Board addresses the operative aspects of the articulation of the emerging Lab of Labs and possible challenges that could arise in doing so. It identifies the structural, procedural, and cultural conditions necessary for effective transformative learning and innovation within and across Living Labs and experimentation spaces that will come to compose the Lab of Labs. The challenges identified can be clustered into four categories: Learning & Pedagogy, Governance & Engagement, Innovation & Experimentation, and Recognition & Communication.

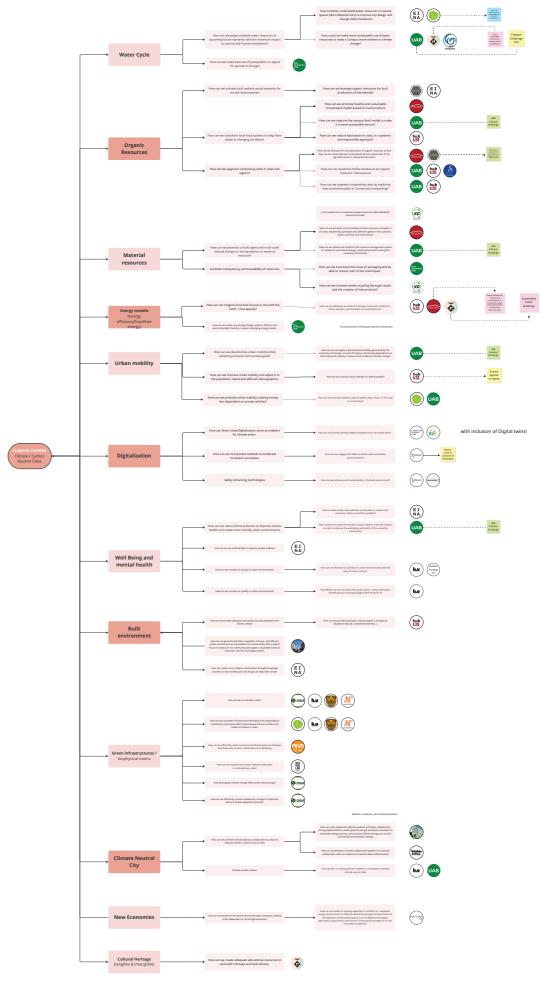
These operational challenges highlight the importance of flexible, inclusive, and co-creative learning environments. They call for better stakeholder engagement, improved communication strategies, and mechanisms for certifying informal learning. They also emphasize the need to institutionalize knowledge and avoid the pitfalls of short-term projectification. Importantly, these challenges were derived from direct input by practitioners and researchers, ensuring their relevance and applicability.

Consult the full board ULALABS Web Portal



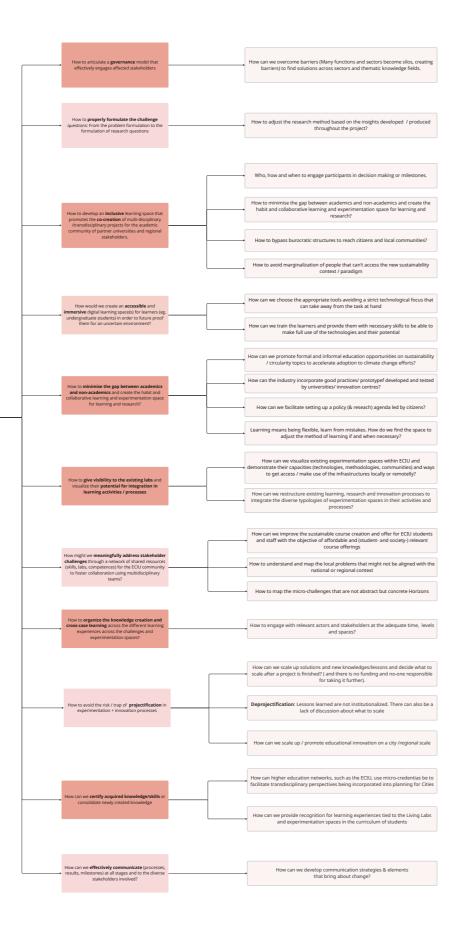
The ULALABS challenge identification process exemplifies how universities can lead systemic innovation through collaborative, challenge-based methodologies. By developing and validating the Operational and Thematic Challenge Boards, the project has created a robust framework to help align institutional capacities/capabilities with societal missions. These boards not only guide the ULALABS Shared R+D+I Agenda but also offer a model and methodology for other institutions and regions seeking to foster sustainable, inclusive futures through co-creation and experimentation. As ULALABS continues to evolve, these tools will remain central to its mission, serving as living instruments for reflection, coordination, and transformation across the European innovation landscape.

A. Thematic Challenge Board



GRAND STRATEGIC SPECIFIC
CHALLENGE CHALLENGES CHALLENGE

B. Operational Challenge Board



Several key insights produced during the ULALABS Challenge identification and the creation process of the two Challenge Boards can be of interest to other communities and contexts that want to promote similar processes in their regions:

- 1. Participatory Design: Engaging stakeholders from the outset fosters ownership, trust, and relevance. The use of exploratory workshops and collaborative tools can be adapted to other regional or institutional contexts.
- 2. Layered Structuring: Organizing challenges into mission, grand, strategic, and specific levels allows for strategic coherence while enabling local adaptation. This model can be replicated in other challenge-based initiatives.
- **3. Dual Focus:** Addressing both thematic and operational challenges ensures that innovation is not only visionary but also feasible. Institutions elsewhere can benefit from this dual approach to align goals with capacities and local context.
- **4. Living Documents:** Treating the Challenge Boards as evolving tools rather than static out-

- puts encourages continuous learning and adaptation. This mindset is crucial for long-term impact and for maintaining the Shared Agenda up-to-date with ongoing challenges.
- **5. Integration with Broader Agendas:** Linking the boards to the shared R+D+I agenda and Learning Community Roadmaps ensures strategic alignment and facilitates cross-institutional collaboration.
- **6. Embedding in Ecosystems:** Recognizing universities as part of broader regional ecosystems, rather than isolated actors, enhances their capacity to drive systemic change. This perspective is increasingly relevant across Europe.

CHALLENGE PRIORIZATION



Addressing all identified challenges would not be realistic within the project time-frames or other real-world contexts. In order to prioritize which of the identified challenges one should begin to work on, a multi-criteria framework and reflection should be made considering a series of different aspects:

1. Impact

How significantly does the challenge affect the success of learning, innovation, or stakeholder engagement?

2. Urgency

How immediate is the need to address this challenge?

3. Shareability

 $How \, many \, stakeholders \, share \, the \, same \, challenge?$

4. Feasibility

How realistically can the challenge be addressed with current resources and structures?

5. Scalability

Can solutions to this challenge be scaled across labs, universities, or regions?

6. Inclusivity

Does the challenge address equity, access, or inclusion?

Shared R+D+i Learning Agenda

CO-CREATING A LEARNING AGENDA AROUND SHARED CHALLENGES



The development of the **Shared Research**, **Development**, and **Innovation** (R+D+I) Agenda was a key process for the ULALABS project and followed a structured five-step methodology designed to foster collaboration among partners from the four partner regions. The process began with a collaborative mapping of strategic urban challenges related to climate change, which were visually represented on a shared Miro board. This initial step, as explained in the earlier section, aimed to identify common challenges across regions and establish the foundation for the shared agenda.

In preparation for a thematic workshop, a team from Linköping University categorized the identified challenges, focusing on those that appeared across multiple regions. These were grouped into three overarching themes to guide the workshop discussions. The workshop, held at the University of Twente in May 2025, brought together stakeholders from all partner institutions and regions to validate and refine these shared challenges and to prioritize strategic actions for the pilot phase.

During the workshop, participants reviewed printed boards displaying both strategic and operational challenges gathered from earlier regional workshops. Through collaborative analysis, they identified overlapping issues and refined the definitions of shared challenges. These were then assessed based on the specific needs and opportunities within each partner's ecosystem, helping to determine which challenges were most urgent and actionable.

The methodology also included a review of existing strategic frameworks to ensure the alignment of the ULALABS agenda. Key regional R+D+I agendas and documents from each region were analyzed in parallel with the ECIU Strategic Agenda and Vision. This involved compiling relevant agendas, summarizing their content, and mapping their relevance to ULALABS' mission. Key aspects considered included strategic priorities, thematic focus areas, involved stakeholders, timeframes, and regional capacities.

A SHARED LEARNING AGENDA WITH A STRATEGIC VISION

The insights and outcomes from the collaborative workshop were used to draft the initial 'Shared R+D+I Agenda'. This draft was circulated among all partners for review and refinement, culminating in a finalized agenda, a document that reflects a collective vision and strategic direction for innovation and research collaboration within the ULA-LABS community and the ECIU context.

The co-creation of a shared R+D+I agenda resulted in a strategic vision for ULALABS which outlines both short-term and long-term goals aimed at fostering sustainable urban transformation through collaborative, challenge-driven innovation. In the short term, by 2026, ULALABS focuses on three overarching shared challenges:

- · Climate-neutral and resilient cities,
- Resource management and circular economy
- · Transformative learning and engagement

For climate-neutral and resilient cities, the focus is on urban greening, water management, renewable energy, inclusive mobility, and digital competence in governance. For resource management and circular economy, the emphasis is on sustainable resource use, waste reduction, local food systems, and citizen empowerment. Transformative learning and engagement highlights challenge-based education, civic participation, and the integration of Living Labs into curricula and research. These challenges serve as a conceptual framework for joint initiatives within the ULALABS ecosystem and align closely with the 'ECIU University's Smarter Research and Innovation Agenda'.

The **short-term strategy** is grounded in the concept of a "meta-lab," a distributed network of Urban Living Labs (ULLs) that facilitates knowledge exchange and coordinated learning across different urban contexts. This model supports systemic innovation by integrating experimentation spaces, including university campuses, into a broader learning community. The initiative contributes to several UN Sustainable Development Goals (SDGs), including sustainable cities, climate action, responsible consumption, clean water, quality education, and global partnerships.

Looking ahead to **2030**, **the long-term vision** envisions the creation of a 'Distributed Living Lab', a "Lab of Labs", that connects diverse urban experimentation spaces across Europe. This hybrid model will support transformative learning through challenge-based methodologies and foster a stakeholder-driven approach to innovation. The long-term goals include expanding the network of connected campuses, developing indicators to monitor progress, creating adaptive learning structures with micro-credentials, and ensuring inclusive, citizen-led innovation processes.

In conclusion, the R+D+I agenda and its strategic vision emphasize the importance of aligning the short-term challenges with future initiatives and interventions across partner regions. It calls for continued dialogue and collaboration to anchor the proposed vision of the "Lab of Labs" in tangible outcomes that drive urban sustainability transformations.

DEVELOPING FUTURE LEARNING SCENARIOS WITH THE COMMUNITY

The ultimate step for the co-creation of the Shared vision and R+D+l agenda to reach their completion was the final validation with the ULALABS community. The project visit and activities in Enschede in May 2025 provided a key and timely opportunity to create a space and engage with the community for such purpose. This process was done in two parts:

- 1. A **Workshop** between project partners and key stakeholders from the four partner regions that took place in the University of Twente in Enschede on May 15th, following the **Responsible Futuring methodology**. The goal of the workshop was to outline the necessary steps to develop and activate Learning Communities both at the intra-regional and European level, focusing on the ULALABS regions. The workshop aimed to define what actions stakeholders should take to implement these learning communities, as well as how to contribute to the formation of a broader European network.
- 2. A **Roundtable debate** as part of the second ULALABS Multiplier Event on May 14th titled "Tackling Urban Challenges. How do Urban Experimentation Spaces develop learning communities?" held in Connect-U in Enschede. The project invited nine representatives from urban experimentation spaces to reflect on the formation of learning communities, both within local and regional contexts, and across the broader ULALABS learning community. Participants shared their experiences, both with regard to the general enablers and challenges related to learning communities in each of their contexts, as well as specific tools that they are employing, or envisioning, for their facilitation.

RESPONSIBLE FUTURING WORKSHOP

METHODOLOGY

The workshop built upon prior project deliverables, particularly those related to the base definition of learning communities and the development of learning and experimentation toolkits. It was designed to identify, articulate, and activate learning communities by engaging diverse stakeholders (academics, public officials, and lab managers) in a participatory and iterative process utilizing the Responsible Futuring method developed by the Design Lab in University of Twente. It was structured in five distinct phases:

1. Preparation Phase

This phase involved logistical arrangements such as the room, and the provision of creative materials. The workshop was hosted in the Design Lab's Inform room and lasted three hours. It also included an ice-breaking activity where participants created personalized name badges, fostering a creative and inclusive atmosphere.

2. Critique Phase

Participants were divided into groups and assigned one of four pre-defined scenarios, each addressing a specific challenge related to learning communities. Using A1 posters and guided questions, participants engaged in group discussions and individual brainstorming to identify and cluster key challenges. This phase emphasized critical reflection and collective sense-making.

3. Fantasy Phase

Utilizing the "Futures Wheel" methodology, participants envisioned a future where the identified challenges had been resolved. They explored the systemic implications of these resolutions across political, economic, social, technological, legal, and ethical dimensions. This phase encouraged imaginative thinking and the articulation of desirable futures.

Template sheet of the **Futures Wheel** methodology used in the third step of the workshop.

More info on the Responsible Futuring Toolbox

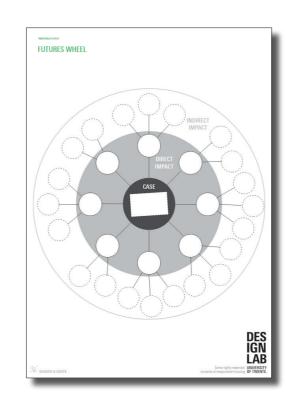


4. Implementation Phase

Participants defined actionable steps to realize the envisioned futures. This included individual and group-level planning using the "Define Activities" worksheet. The phase culminated in a gallery walk where groups presented their plans, and participants identified synergies and offered feedback, fostering cross-pollination of ideas.

5. Extension Phase

In the final phase, participants individually reflected on how they and their organizations could contribute to the desired futures using the "Desired Future Roadmap" tool. This phase emphasized personal commitment and organizational alignment. The workshop concluded with a collective debrief and distribution of group outputs.



SCENARIO-BUILDING

The initial step of the workshop is underpinned as mentioned earlier by four defined scenarios that serve as speculative yet plausible contexts for exploration. The scenarios were the following:

- (1) Building intra-regional learning communities
- (2) Organizing a joint regional learning process
- (3) Building a trans-regional learning community
- (4) Integrating living labs into CBL & CBR

The four scenarios represent an example of how the Responsible Futuring workshop format enables collaborative and experience-based insights into the operational challenges that learning communities need to address. The workshop design offers several grounded insights that are transferable to other regional contexts and living labs engaged in transformative learning and innovation. A key lesson lies in the structured, multi-phased

methodology that integrates critique, imaginative foresight, implementation planning, and individual reflection. This design facilitates a progression from problem identification to the co-creation of actionable strategies, thereby fostering both systemic awareness and pragmatic orientation among participants. The use of scenario-based group work emerges as a particularly effective mechanism for contextualizing abstract challenges. By anchoring discussions in plausible future scenarios, the workshop enables participants to explore complex socio-technical dynamics in a manner that is both situated and speculative. This approach enhances the relevance of the dialogue and supports the emergence of locally grounded yet transferable insights.

Each scenario is accompanied by probing questions to guide participant reflection and discussion. The outcomes of the four explored scenarios are presented in continuation.



WORKSHOP OUTCOMES

CO-CREATED FUTURE SCENARIOS FOR THE ULALABS LEARNING COMMUNITY

1. Building an Intra-Regional Learning Community

By 2030, the vision is to create a dynamic learning community within one of the ULALABS regions. This community would involve stakeholders from different sectors (society, academia, administration, companies, living labs) coming together on various projects, with a shared focus on urban sustainability and climate resilience. The main challenges identified were linked to financial and logistical constraints, for example unclear or fragmented identity of the community, and time limitations. A second challenge was community engagement, linked to the need to establish a shared vision and building trust. The group identified necessary steps and actions:

- **Short-term:** Initiate informal, low-cost activities such as "shadowing a stakeholder day," and foster empathy through cross-sector lunches.
- **Medium-term:** Develop flexible structures and offer incentives such as paid time for community engagement.
- **Long-term:** Formalize these efforts by revising institutional regulations to reward collaboration across labs and develop open science platforms to share knowledge and avoid repetition.

2. Organizing a Joint Regional Learning Process

The municipality of Enschede is developing a framework for regional learning and knowledge valorization. This process focuses on societal transformation and aims to embed learning into existing practices to support long-term innovation. There were two main challenges identified. One was linked to establishing a shared vision and engagement from diverse stakeholders, similarly to the first case. The second challenge was linked to resources and infrastructure, namely securing funding and developing a shared understanding of processes. The group identified necessary steps and actions to improve the current situation:

- **Short:** Foster reflective spaces and ensure that stakeholders understand their roles in the process.
- **Medium:** Use open knowledge platforms to communicate values and create bridges between different phases of the learning process.
- **Long:** Pilot the framework by collaborating with stakeholders and improving the model over time based on feedback.

3. Building a Trans-Regional Learning Community

By 2030, the aim is to have a Distributed Mutual Learning Community that links local stakeholders from multiple ULALABS cities (Barcelona, Linköping, Stavanger, and Enschede). This community would emphasize dialogue and communication, facilitating the exchange of knowledge across regions. For this to work, several challenges would have to be overcome, namely balancing community size and topic (ensuring that the community's capacity aligns with the complexity of the challenges) and creating the right balance between the community's size, resources, and the issues it tackles. The group identified necessary steps and actions to work towards the desired future:

- **Short:** Establish common storytelling methods, share knowledge, and define the channels for communication
- **Medium:** Strengthen connections through collaborative projects and create a shared vocabulary.
- **Long:** Foster sustainable partnerships by engaging city planning departments and expanding the community's scope to include new regions.

4. Integrating Living Lab; into CBL & CBR

By 2030, the aim is to integrate local innovation labs into the educational system through challenge-based courses. These courses will focus on societal challenges, with students collaborating with stakeholders (e.g., companies, civil society, and local governments) to develop real-world solutions. The group identified the following challenges to achieving this future: misalignment between societal challenges and educational goals (ensuring that challenges presented by societal partners are well-defined and suitable for educational purposes), and the role of Non-Academic Partners (Clarifying their role as problem owners, not evaluators). The group identified necessary steps and actions to work towards the desired future:

- Short: Initiate dialogue with stakeholders to explain the benefits of CBL & CBR
- **Medium:** Create effective communication channels for stakeholder involvement and integrate these challenges into university curricula.
- **Long:** Train educators and develop tools to help them facilitate challenge-based learning and continue refining the approach over time based on feedback.

LESSONS LEARNED

After the Responsible Futuring workshop, the four groups, despite having pursued different scenarios with individual outcomes, shared similar recommendations on the key steps needed to build active and engaging Learning Communities.

1. Shared Vision and Goals

Both at the intra-regional and European levels, a unified vision for sustainability and innovation is crucial for alignment and motivation. Clear goals ensure that all stakeholders are working towards a common purpose.

2. Stakeholder Engagement and Inclusivity

Building learning communities requires active involvement from diverse stakeholders across sectors (government, academia, civil society, businesses). Engaging interest groups and ensuring that all voices are heard is vital for a sustained impact.

3. Flexibility and Adaptation

Learning communities should evolve as they grow. Flexibility in their structure and processes allows them to adapt to new challenges, incorporate feedback, and integrate new stakeholders over time.

4. Resource Allocation and Institutional Support

Adequate resources, including funding and infrastructure, are essential. Institutional regulations should also support community engagement by recognizing and rewarding collaborative efforts, including paying community leaders and offering time for researchers to engage with communities.

5. Knowledge Sharing and Open Science

Communities should create platforms for sharing knowledge and avoiding duplication of efforts. Open science practices ensure that knowledge generated in one region or project is accessible and can inspire solutions in others.

6. Iterative Process and Continuous Improvement

It is important to continuously reflect on the process, adapt the community's strategies, and allow room for trial and error. Structured feedback loops from all stakeholders ensure that the learning community remains relevant and impactful over time.

Moreover, the deliberate inclusion of diverse stakeholders, spanning academia, public administration, civil society, and industry, underscores the importance of cross-sectoral collaboration in the formation of learning communities. The workshop's emphasis on dialogical engagement and mutual learning reflects a commitment to participatory knowledge production, which is essential for fostering trust and long-term collaboration. Finally, the integration of creative facilitation techniques and reflective tools, such as the Futures Wheel and Desired Future Roadmap, demonstrates the value of combining analytical rigor with imaginative exploration. These elements collectively contribute to a learning environment conducive to both critical inquiry and transformative action.

ROUNDTABLE REFLECTION





Another opportunity to bring together the community appeared as part of the second ULALABS Multiplier Event entitled "Tackling Urban Challenges. How do Urban Experimentation Spaces develop learning communities?" held in U-Connect. The project invited nine representatives of urban experimentation spaces to reflect, as part of a panel discussion, on the formation of learning communities both within their local/regional context, but also on an European / ECIU level.

During the discussion, participants shared their experiences, both with regards to the general enablers and challenges related to learning communities in each of their context, the specific tools that they are employing for their facilitation and their vision of the ULALABS community. The panel discussion focused on (i) how the different experimentation spaces/organization are involved in regional/ local learning communities, (ii) Which tools and activities are used to support collaboration, exchange of ideas and knowledge, and networking within the community, and (iii) How to facilitate the knowledge exchange/ learn from local experience contribute to the larger knowledge agenda and ultimately, support the development of a European scale learning community.

The nine participants of the roundtable facilitated by **Wiro Kuipers**, were the following:

- **Helene Eiliott** (Stavanger Municipality)
- Torill Steinback Hoel (Nordic Edge)
- Alfons Mias (UAB Open Labs)
- **David Muñoz** (Cerdanyola Municipality)
- Angela Rijnhart (Municipality of Enschede)
- Maya van den Berg (Design Lab)
- **Eric Wolkotte** (Challenge Lab Twente)
- Wilja Jurg (Tetem)
- Sara Malmgren (Testbed Ebbepark)

While the different experimentation spaces represent a wide spectrum in terms of scope, topics, user groups and organizational features, the participants agreed on the importance of learning communities, but also on several challenges that are linked to their establishment. One key aspect that was raised by several participants was the need for collaboration between universities, municipalities, industry/businesses and citizens, emphasizing the importance of engaging across sectors and communities, and of breaking down any existing silos. Universities were described as 'islands', which arguably need to strive beyond their comfort zone and engage with communities. Meanwhile, sever-



al of the experimentation spaces described their role as **translators** and **facilitators**, connecting different actors and organizations as part of learning communities or learning /experimentation processes.

A key aspect that was highlighted by the participants was to allow experimentation spaces and their learning communities to explore new ways of developing and growing these communities more organically. Rather than imposing the goals and research questions, learning communities need to be empowered to outline their topics, format, and pace, depending on local needs, motivated by the freedom to make choices to work with people that they want to work with and to work in their own way, creating their own approach. Such an emotional ownership was pointed out as essential to allow for real community engagement and experienced relevance.

Urban Experimentation Spaces were further described as platforms for piloting and showcasing innovations, providing access to real environments, resources, and networks, acting as gate-

ways for new solutions. Their role as **neutral spaces** or actors, situated between the public and the private sector, was argued to be crucial for experimentation and innovation, allowing for exploration, experimentation and mutual learning as part of the process.

A further notion referred to the need for urban experimentation spaces to allow for cultural and emotional dimensions, such as art and cultural heritage, which can enhance the perceived relevance and value of collaborative projects and initiatives, providing possibilities for more long-term perspectives in urban experimentation spaces. As the participants expressed, the creation of ownership and meaning requires creating space, freedom, flexibility, openness and inclusivity.

tools that they are employing to facilitate and sustain their learning communities. These ranged from meetings and newsletters to digital platforms and digital maps to showcase projects, informal thematic networks, databases for sharing tools, methods, experiences and outcomes in accessible online formats, as well as methodologies such as agile piloting.

COMMUNITY INSIGHTS

The panel debate offered a synthesis of the potentials and pitfalls of learning communities within urban experimentation spaces. As the discussion unfolded, it became clear that these communities hold immense promise for fostering innovation and collaboration across sectors but their development is neither straightforward nor uniform.

A key insight was the importance of positioning experimentation spaces as neutral and facilitative environments, places where municipalities, universities, businesses, and citizens can converge. These spaces act as translators between actors, helping to bridge institutional divides and foster mutual understanding. Yet, the challenge of overcoming entrenched silos, particularly within municipal and academic structures, remains a significant barrier.

The panel also emphasized the need for learning communities to **grow organically**. Rather than being driven by externally imposed agendas, they should be shaped by local needs, interests, and rhythms. **Emotional ownership**, rooted in freedom, relevance, and inclusivity, was identified as

a cornerstone for sustained engagement. The integration of cultural and emotional dimensions, such as art and heritage, was also seen as a way to deepen the **meaning** and **long-term value** of collaborative efforts. This holistic approach enriches the learning process and strengthens community ties.

Finally, the diversity of tools and practices shared, from open-access labs to digital platforms, underscored the importance of **accessibility** and **continuity**. These reflections collectively point to a nuanced understanding: learning communities thrive when they are inclusive, adaptive, and rooted in **shared purpose**. Yet the question remains; how do you do this in practice? This is a key aspect of the upcoming pilot phase in WP5 and a central question to the whole ULALABS project.

42 4:



CO-DEVELOPMENT OF LEARNING & EXPERIMENTATION TOOLKITS

Next step, the Roadmap is focused on the development of the fundamental Learning Toolkits to support experimentation and transformative learning in the ULALABS pilot context. This section reflects upon and outlines the key methodological aspects of the activity, emphasizing its iterative, participatory, and context-sensitive approach.

One of the central methodological choices of the Toolkit creation activity is the adoption of a **de-ploy-and-learn strategy**. This iterative approach allows the definition to evolve through stakeholder feedback before and during the pilot implementation, rather than being finalized in a top-down manner. This flexibility ensures that the syllabus remains relevant and adaptable to the diverse needs of learners and stakeholders across different regions and sectors at all times.

The creation of the Learning Toolkits is a direct continuation of the processes and findings produced in WP3. The conceptual foundation laid with the base definition of the learning community and its needs; the ecosystem mapping identifying the characteristics and joint capacities: the identification of shared challenges, all informed the prioritization of themes and the structuring of content. This alignment ensures that the syllabus is grounded in a **shared understanding of**

inclusion and transformative mutual learning.

The realized activities emphasize the importance of co-creation and stakeholder engagement throughout the development process as stakeholders from academia, industry, public administration, and civil society were actively involved throughout the process. This methodological focus ensures that the Toolkit syllabus reflects the challenges presented by our stakeholders and fosters a sense of ownership among participants in the learning community.

Methodological pluralism is made evident in the diverse tools and methods identified during the process, including surveys, workshops, collaborative platforms, and visual mapping tools. This diversity allows for the integration of multiple forms of knowledge creation and supports distributed learning. The use of digital tools enhances distributed collaboration and accessibility, particularly in geographically dispersed contexts. Contextual **responsiveness** is a key methodological aspect with regional local workshops providing valuable insights into specific knowledge gaps, barriers, and practical needs of the community which were integrated into the structure. This approach acknowledges the complexity and variability of urban sustainability challenges and supports placebased learning.



LEARNING TOOLKIT STRUCTURE

The initial toolkit structure was co-created by partners at the beginning of WP4. Its structure is designed for modularity, supporting diverse learning resources and pathways while accommodating varying levels of engagement. The toolkits are centered around specified learning outcomes relevant to the challenge at hand. The use of microcredentials and digital badges, in alignment with European standards, enhances the portability and recognition of acquired competencies. This methodological choice supports lifelong learning and bridges formal and informal learning experiences.

Transdisciplinary and transformative learning are central pedagogical principles embedded in the syllabus. The toolkits place emphasis on challenge-based methodologies but also on complementary approaches such as design thinking, systems thinking and responsible futuring that foster cross-sectoral collaboration and critical reflection. These principles align with the transformative learning model articulated in earlier sections, which emphasizes the journey from specific experiences to abstract understanding and back to new applications.

The overall toolkit syllabus attempts to address both collective capacities but also importantly barriers and gaps in the existing learning ecosystems. Stakeholder consultations identified various challenges related to budgeting, collaboration, policy frameworks, and cultural attitudes toward innovation. These insights will inform the design of toolkit modules that address specific barriers and guide learners in navigating complex urban challenges. A notable methodological strength is the emphasis on reflexivity and continuous improvement. The iterative design process includes structured feedback loops and validation sessions, enabling the syllabus to remain responsive to emerging needs. This reflexive stance supports meta-learning and enhances the quality and relevance of the learning experience.

The process exemplifies our attempts at a thoughtful and inclusive methodological approach to developing a 'Learning Toolkit Syllabus' for transformative urban sustainability. Its emphasis on co-creation, contextual responsiveness, modularity, and reflexivity provides a strong foundation for the ULALABS project and offers valuable lessons for similar initiatives. By integrating diverse perspectives and aligning with broader project frameworks, ULALABS contributes to the development of resilient and adaptive learning communities capable of driving systemic change.

ULALABS CHALLENGE LEARNING TOOLKIT

STRUCTURE

GENERAL INFO CHALLENGE TITLE PROMOTOR The title of the challenge, that the Short description of the challenge Each challenge is coordinated by a partner University that is also retoolkit will accompany, needs to at hand, showcasing key critical asbe defined adequately and with pects and potential learning outsponsible for coordinating relevant precision to describe the question learning outcomes and potential at-hand microcredencials. **MODULES** CORE Ad-hoc learning activities and resources created specifically in Supporting modules relation to the selected challenge and context to accompany the Methodology 1 Module 1 process. Methodology 2 В SUPPORTING Module 2 Tool 1 Existing resources that have been identified during the research, phase or during the toolkit definition and can support the challenge based process. REFERENCES Learning Outcomes Other knowledge resources identified as relevant to the challenge Outcome 1 Knowledge+Skills+Attitudes Microcredential 1 С and the process are included in Outcome 2 Knowledge+Skills+Attitude Microcredential 2 this section. **LEARNING OUTCOMES** TYPES OF LEARNING **MICROCREDENTIALS POTENTIAL OUTCOMES**

The diagram above provides a general overview of the Toolkit Structure that will be developed for each Challenge in the Pilot Phase of the ULALABS project (WP5). As mentioned these toolkits are challenge-specific and the sum of these toolkits will form the ULALABS Learning Toolkit Syllabus that will be shared at the end of the project.

Details on the specific knowledge.

skills and attitudes gained during

the process of attaining the learn-

ing outcomes

The list of microcredentials pre-

pared and contemplated in rela-

tion the potential learning out-

comes of the challenge process.

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The identification and definition of

potential learning outcomes relat-

ed to the process and in accord-

ance to the official classification

frameworks analyzed.

LEARNING OUTCOMES & TOOLKIT CONTENT HARMONIZATION







The three key classification frameworks identified as relevant for the ULALABS project and the creation of the Learning Toolkits.

A critical step in the development of a robust and context-sensitive Learning Toolkit Syllabus is the selection of learning resources and the harmonization of toolkits with the specific urban challenges at hand, in order to support meaningful transformative learning within the Mutual Learning Community and the broader Lab of Labs operational framework. The methodological approach continued with its integrative, iterative, and stakeholder-informed design, reflecting the project's overarching commitment to co-creation, adaptability, and systemic learning while building upon prior activities, which established the initial structure of the Learning Toolkits. It identified and analyzed existing toolkits, aligning them with the identified challenges, and preparing them for implementation in the pilot phase. This continuity ensured methodological coherence across work packages and reinforced the project's learning-centered approach.

Rather than reinventing the wheel, the process draws inspiration from existing methodologies and toolkits with the intention to learn, adapt and reconfigure them to the specific needs of the UL-ALABS project and creating new ad-hoc material when needed. This task was guided by a structured analysis of existing toolkits resources, includ-

ing the IDEO DesignKit, URBACT Toolbox, UNaLab Toolkit, UOC Design Toolkit, ECIU Toolbook, and the Responsible Futuring Toolbox among others. Each of these toolkits was evaluated for thematic relevance, methodological robustness, and alignment with ULALABS' goals.

Another key methodological aspect is the integration of learning outcomes and relevant European classification frameworks that were identified during the analysis. In this sense it considered three major European competence frameworks:

- **ESCO Classification** European Skills, Competences and Occupation Classification
- **GreenComp** The European Sustainability Competence Framework
- **DigComp** The Digital Competence Framework for Citizens

These informed the definition of learning outcomes for each toolkit and challenge to be tack-led in the Pilot. This alignment ensures that the toolkits are not only pedagogically sound but also relevant to societal and labor market needs, sustainability goals, and digital literacy. Learners will have to address three types of learning during the process of reaching the learning outcomes:

1 - Knowledge

Facts, information, experience, and the theoretical or practical understanding of a subject

2 - \$kill\$

The ability to apply knowledge effectively to perform certain tasks

3- Attitude

Learning to form a new or different viewpoint or belief on a certain topic / practice

The triangulation of these frameworks provides a comprehensive foundation for selecting and defining relevant learning outcomes. But also for designing the respective relevant micro-credentials and digital badges to certify the acquired competences during the pilot. Microcredentials are another key aspect of the project, aligning with the broader ECIU and EU context.

For the toolkit harmonization task the stakeholder engagement remained a cornerstone of the methodology, building on the co-creation processes initiated with the Toolkit structure creation and incorporating feedback from the four regional workshops on ecosystem mapping, and challenges identification. This continuous participatory approach ensures that the selected toolkits are grounded in real-world needs and reflect the lived experiences of learners and practitioners in relation to the presented challenges. It also fosters a sense of ownership and relevance, which are critical for sustained engagement.

Significant attention has been paid to linking toolkits to the specific challenges identified. This challenge-based orientation ensures that learning is not abstract but directly tied to real pressing urban and climate-related issues. By aligning toolkits with the thematic and operational challenges, that will be tackled during the pilot phase, it enhances the practical utility of the learning resources and supports the development of actionable knowledge and achieving concrete learning outcomes.

The deploy-and-learn methodology adopted throughout the process, emphasizes iterative refinement based on feedback and real-world testing. The selected toolkits will be piloted in WP5, and their effectiveness will be evaluated as part of WP4. This iterative cycle allows for continuous improvement and ensures that the toolkits remain responsive and relevant to evolving needs. The methodological approach also places a strong emphasis on open science and knowledge sharing. The toolkits are designed to be transferable and easily accessible, with content produced in English to facilitate dissemination. The integration of FAIR data principles and open access repositories further supports the project's commitment to transparency and collective learning.

Lastly, the methodological choices in the creation of the toolkits reflect a strategic approach to learning toolkit creation and harmonization with the challenges at hand. By integrating promising practises, aligning with European competence frameworks, engaging stakeholders, and emphasizing adaptability, it will hopefully lay a solid foundation for the implementation of transformative learning within the ULALABS project.

Methodological Reflections

WHAT DID WE LEARN?

REFLECTIONS ON METHODOLOGICAL CHOICES THAT OTHER INITIATIVES CAN LEARN FROM

The methodological journey of articulating a Learning Community in the ULALABS project has been both ambitious and adaptive, aiming to translate a complex conceptual framework into a practical roadmap for establishing Inclusive Transformative Mutual Learning Communities. The following reflections outline the key methodological choices made throughout the process, the rationale behind them, and the insights gained that may inform similar initiatives seeking to foster systemic urban sustainability transformations through learning-centered approaches.

FROM CONCEPTUAL FOUNDATIONS TO OPERATIONAL FRAMEWORKS

The core challenge for ULALABS lies in operationalizing a conceptual model of inclusive and transformative learning communities. The initial and foundational work in WP3 established a theoretical base grounded in transformative learning theory, mutual learning, and distributed learning communities. This conceptual grounding emphasized the importance of dialogical engagement, contextual adaptation, and critical reflection as mechanisms for enabling change. Rather than treating this conceptual base as a static blueprint, the methodology adopted in ULALABS is iterative and responsive. The five-stage planning process, ranging from conceptual definitions to the co-creation of a shared vision and learning agenda, was not implemented as a rigid sequence but as a flexible framework that could adapt to the diverse regional contexts of the project. This flexibility proved essential in navigating the varying institutional cultures, stakeholder dynamics, and temporal constraints across the four participating re-



INCLUSION AS A FOUNDATIONAL METHODOLOGICAL PRINCIPLE

A defining feature of the ULALABS methodology is its commitment to inclusion, particularly inspired by an intersectional gender lens. Rather than treating inclusion as an add-on, it needs to be embedded as a transversal principle across all stages of the project. This proved quite tricky in early activities as most of these activities were in collaboration with urban experimentation spaces staff and managers, who do not reflect a representational excerpt of society. In this sense, inclusion took mainly the form of co-creation and participatory methods in WP activities. The syllabus structure and toolkits selection however, introduce specific core learning activities centered on intersectional and inclusive perspectives. As the project moves into the pilot phase, it becomes vital to better incorporate inclusion as a methodological principle.

EMBRACING ITERATION AND RESPONSIVENESS

One of the most significant methodological choices was to emphasize process over final outcomes. The approaches chosen emphasize the importance of iterative engagement with stakeholders. This was evident in the ecosystem mapping activities, where the use of tools like KUMU and MIRO facilitated collaborative data collection and visualization. These tools were not merely technical solutions but enablers of dialogue, reflection, and co-creation. The iterative nature of the methodology also allowed for mid-course corrections. For example, the mapping of stakeholders and ecosystems revealed gaps in societal representation, prompting a re-evaluation of engagement strategies. Similarly, the development of the Challenge Boards evolved through multiple rounds of validation and refinement, ensuring that they reflected the lived realities and priorities of regional actors.

MAPPING AS LEARNING NOT JUST LISTING

The ecosystem mapping exercise exemplified the shift from data collection to learning facilitation. Rather than producing a static inventory of actors, the mapping process was designed to surface relationships, roles, and knowledge flows within and across regional ecosystems. The use of co-created categories helped stakeholders see themselves within a broader system and identify opportunities for collaboration. This approach to mapping also highlighted the importance of visualization in supporting systemic thinking. By making relationships visible, the map became a tool for strategic alignment, trust-building, and capacity development. It also served as a living document, continuously updated to reflect the evolving nature of the learning community.





METHODOLOGICAL PLURALISM AND TOOL DIVERSITY

ULALABS employed a variety of tools and methods, reflecting the project's commitment to methodological pluralism. These included participatory workshops for co-identifying challenges and mapping ecosystems, digital platforms for collaborative visualization and data synthesis, narrative and dialogical methods for capturing stakeholder perspectives, and reflexive practices such as structured feedback loops and validation sessions. This diversity of methods allowed the project to engage with different types of knowledge (academic, experiential, institutional, and embodied) and to accommodate the varying capacities and preferences of stakeholders. Importantly, the use of digital tools supported the distributed nature of the project, enabling cross-regional collaboration despite geographical distances.

CO-CREATION OF SHARED VISION AND LEARNING AGENDAS

The development of the Shared R&D&I Agenda was another methodological milestone for the project. The five-step process, from challenge mapping to strategic alignment, was designed to foster ownership and coherence across regions working towards common objectives. The use of thematic workshops, collaborative analysis, and iterative drafting ensured that the agenda was not imposed but emerged from collective deliberation. This process also demonstrated the value of layered structuring. By organizing challenges into mission, grand, strategic, and specific levels, the agenda allowed for both high-level visioning and localized action. This structure supported alignment with broader frameworks while remaining grounded in regional realities.

LEARNING COMMUNITIES AS EMERGENT AND CONTINGENT STRUCTURES

A key methodological insight from the process is that learning communities cannot be fully designed in advance; they must be allowed to emerge. This was particularly evident in the final workshop in Enschede, where stakeholders co-created scenarios for intra-regional and trans-regional learning communities. The scenarios revealed that successful learning communities require a shared vision and purpose, flexible structures that evolve over time, institutional support and resource allocation, mechanisms for knowledge sharing and open science, and continuous reflection and adaptation. These elements were not treated as checklists but as guiding principles to be interpreted and enacted differently in each context. This approach aligns with the project's commitment to distributed, placebased innovation and recognizes the importance of emotional ownership and contextual relevance.



REFLEXIVITY AND META-LEARNING

Throughout the process, reflexivity was not only encouraged but institutionalized. Regular check-ins, validation workshops, and feedback loops created opportunities for meta-learning; learning about the learning process itself. This reflexive stance enabled the project to remain responsive to emerging challenges and to adjust its methods accordingly. For example, the recognition of universities as "islands" prompted a rethinking of their role in learning communities, not as knowledge providers but as facilitators of co-creation. Similarly, the emphasis on emotional and cultural dimensions expanded the methodological repertoire to include affective and symbolic forms of engagement.



The methodological metaphor of WP3 has been one of **translation**, turning abstract concepts into grounded practices, and turning diverse stakeholder inputs into shared agendas with a strategic vision. Building transformative mutual learning communities is not a linear task but a complex, iterative, and deeply relational process. By embracing methodological pluralism, reflexivity, and inclusion, ULALABS has laid the groundwork for the pilot phase and offered a roadmap that others can adapt to their own contexts. The methodological choices and experiences offer several transferable lessons for other initiatives: start with principles, not prescriptions; design for emergence; prioritize process; embed inclusion; use tools as enablers; and foster reflexivity. As the project moves into the pilot implementation, the real test of these methodological choices will lie in their capacity to support sustained, inclusive, and transformative learning across urban experimentation spaces and provide useful learnings that can be upscaled to the whole ECIU ecosystem.



ANTICIPATING FUTURE STEPS OF THE LEARNING COMMUNITY

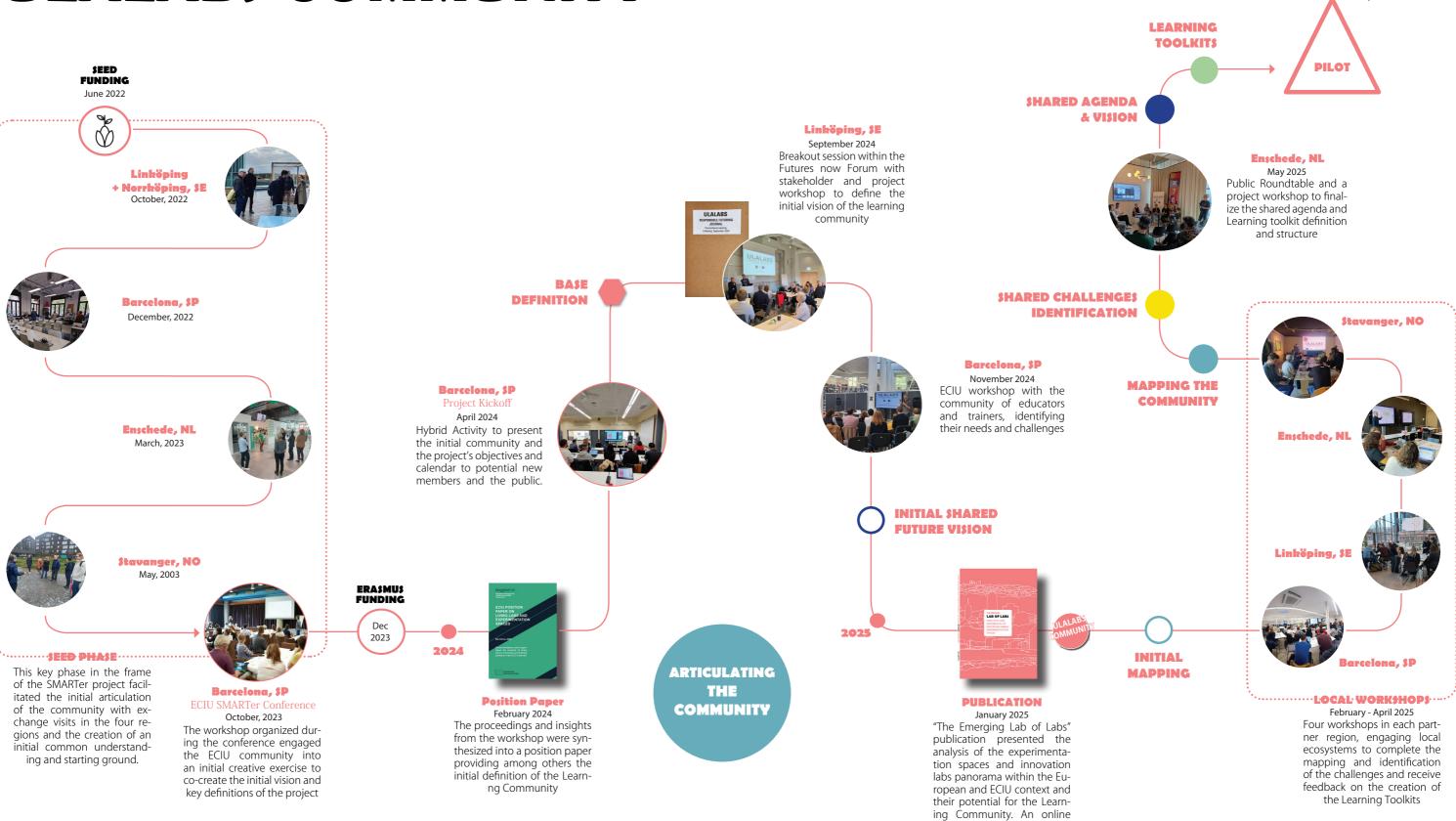


Based on the methodological reflections and activities developed and outlined in the previous chapters of this publication, the pilot implementation phase (WP5) of the ULALABS project is ready to operationalize the concept of Transformative Inclusive Mutual Learning Communities. The transition from conceptualization to implementation is underpinned by a systematic, yet iterative and reflexive methodology that emphasizes inclusivity, contextual responsiveness, and co-creation. This methodological foundation provides critical guidance for the pilot phase, which aims to test learning toolkits, articulate learning communities, and activate the distributed Living Lab model.

To effectively guide the pilot implementation activities (as outlined in WP5), the methodological foundations and reflections developed in earlier Work Packages are central. They have articulated a learning-centered approach grounded in inclusion, transformative learning theory, mutual learning, and distributed learning communities. These earlier phases have successfully established a comprehensive framework for articulating and operationalizing Transformative Inclusive Mutual Learning Communities (TIMLCs), which now must be translated into practice through targeted, context-sensitive, and reflexive interventions.

TIMELINE

ULALABS COMMUNITY



PILOT

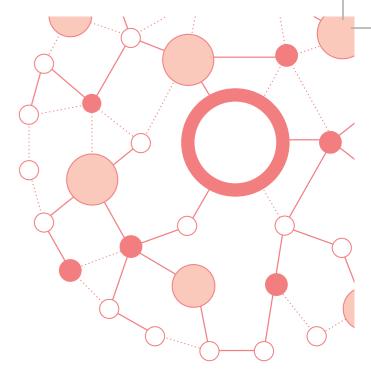
IMPLEMENTATION

The community journey of the ULALABS Learning Community will culminate in the pilot implementation where the diverse concepts, tools

and methodologies will be tested generating potential impact

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session was organized for this purpose.



The framework developed during the preparatory phase of the project anticipates that the Pilot will need to operationalize learning as a process of iterative reflection, contextual adaptation, and dialogical engagement. The adaptive learning cycle developed in WP3 and presented in section 1, moving from concrete experiences to abstraction and back to application, suggests that pilot activities should be designed accordingly to facilitate recursive learning loops. These loops will be essential for enabling participants to not only acquire knowledge but to transform their practices in response to evolving urban sustainability challenges at-hand.

The inclusive ethos embedded in the project and the base definition of the Learning Community, anticipates that the Pilot must institutionalize mechanisms for equitable participation. Inclusion is not a static goal but a dynamic process that requires continuous attention to power relations, positionalities, and access. It will need to implement strategies such as mapping stakeholder positionalities, co-designing participation norms, and enabling access across linguistic, digital, and cultural barriers. These measures are critical for ensuring that the pilot phase does not replicate existing exclusions but instead fosters genuinely inclusive learning environments.

The ecosystem mapping conducted collaboratively with the community offers a strategic lens through which the project can engage stakeholders and activate learning communities. The mapping process emphasized the relational and cognitive dimensions of knowledge exchange, suggesting that it should treat stakeholder engagement as a learning process rather than a transactional one. The KUMU-based ecosystem map can be updated and expanded during the pilot to reflect new actors, relationships, and knowledge flows. This will support the distributed nature of the pilot and facilitate cross-case learning.

The co-creation of the Shared R+D+l Agenda is put in place and anticipates the need for strategic coherence in the pilot. The layered structuring of challenges (mission, grand, strategic, and specific) provided a scaffold for selecting and prioritizing challenges for the pilot activities. The multi-criteria framework proposed in WP3 (impact, urgency, shareability, feasibility, scalability, inclusivity) offers a valuable tool for guiding these decisions. WP5 will need to align its interventions with these challenges, ensuring that they are both locally and trans-locally resonant.

The parallel development of the Learning Tookits and syllabus structure further anticipates the pedagogical and operational dimensions of the pilot in WP5. The "deploy-and-learn" strategy suggests that toolkits should be treated as living resources, subject to iterative refinement through user feedback and contextual adaptation. The integration of learning outcomes based on European competence frameworks (ESCO, GreenComp, DigComp) into the toolkit design anticipates the need for the Pilot to implement a micro-credential system to validate the learning journey. These credentials will be instrumental in fostering future recognition and transferability across the ULALABS and ECIU network. The modular and flexible design of the syllabus anticipates the diversity of learners and contexts that WP5 will encounter. Asynchronous learning pathways, microcredentials, and customizable modules will enable the pilot activities to accommodate varying levels of engagement and expertise. This flexibility is particularly important given the distributed nature of the pilot and the need to engage diverse stakeholders across multiple regions and sectors.

The insight from the community members has also been key for the preparation as well as future steps. The two Responsible Futures workshops realized demonstrated the need for the pilot and ULALABS to facilitate scenario-based learning and strategic foresight. The structured phases of the methodology offer a template for designing pilot activities that move from problem identification

to actionable strategies. ULALABS should adapt this methodology to its specific contexts, using it to engage stakeholders in envisioning desirable futures and co-creating pathways toward them. Accordingly, the reflections from the ULALABS Multiplier Event in Enschede underscored the importance of ownership, cultural relevance, and inclusivity in sustaining learning communities. ULALABS must anticipate the affective dimensions of learning and community-building, creating spaces that are not only intellectually stimulating but also emotionally resonant. This includes considering cultural practices, artistic expressions, and heritage narratives into pilot activities to deepen engagement and foster long-term commitment.

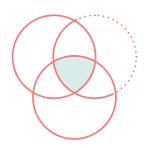
Finally, ULALABS must maintain the continued need for reflexivity and meta-learning. Structured feedback loops, participatory evaluation, and iterative design processes will be essential for adapting pilot activities to local needs in real time. Through the pilot it should institutionalize these practices, ensuring that learning is not only about content but also about process. This reflexive stance will hopefully enable ULALABS to remain responsive to emerging challenges and to recalibrate strategies, methodologies, and activities accordingly for future opportunities and growth.

ACKNOWLEDGEMENTS



We would like to thank the participants of our activities for their active involvement and valuable contributions that are included in this publication. Without the active engagement of the stakeholder partners in our regional ecosystems this work would not be possible.

We would further like to acknowledge the support from our ECIU colleagues, and from all project partners that supported the work in this publication with their energy, insights and feedback throughout the process. The responsibility for this report, including any errors or omissions, rests solely with the authors.







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