



A1 - BASE DEFINITION OF
LEARNING COMMUNITIES

WP3 - Learning Communities Roadmap

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Learning Communities Base definition

WP3.A1 – Base definition of Learning Communities

About this deliverable

This report discusses the concepts of transformative learning and mutual learning communities leading to an operational conceptualisation and methodology. There is a clear need to move beyond conventional conceptualisations of scaling living lab experiences based on information sharing and knowledge. This report argues that there is a need to focus more on learning. How do we learn to use the results of living lab activities in new context and setting? This report introduces the concepts of Transformational Learning and Mutual Learning Communities from adult and professional learning theories as useful to explore new pathways that can assist in scaling living lab experiences. The focus on learning directs attention to how knowledge and information is processed cognitively and socially in ways in order to apply knowledge and experiences across different contexts.

The activities of Work Package 3 of the ULALABS¹ project aim to consolidate the concepts of Transformative Learning and Mutual Learning Communities and develop a shared base definition that provides the theoretical and methodological foundation for the Work Package 3 Learning Communities Roadmap, activities in work package 4 (Learning Toolkit Syllabus) and Work Package 5 (Pilot Implementation). (See figure 1)

¹ The ULALABS project is co-financed by the European Union. The views and opinions expressed are those of the author(s) alone 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.

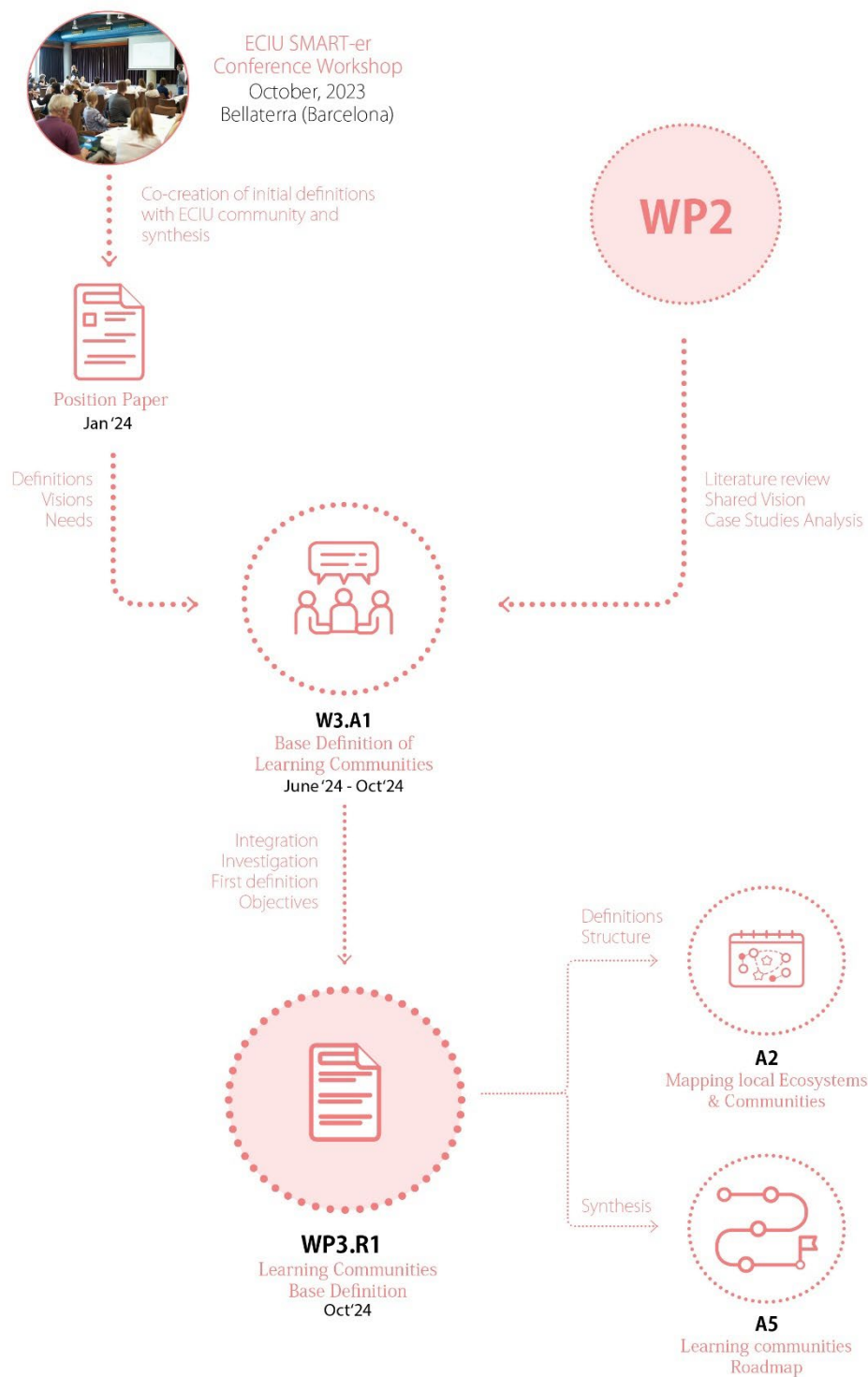


Figure 1 - Project evolution related to the activity

Connection with other WPs and activities

Activity A1 (Base Definition of Learning Communities) and the current report connect with previous and inform subsequent activities and WPs in the following way:

WP2 - ECIU Position paper on LIVING LABS and EXPERIMENTATION SPACES

The ECIU workshop held in Barcelona in October '23 at the UAB Bellaterra Campus provided a first and early instance for the ULALABS consortium to interact with the ECIU ecosystem and launch key questions related to creation of Learning Communities within the ECIU context. The results and the synthesis found in the resulting Position Paper (January '24), serve as the basis for the development of the baseline definition of Learning Communities that will be used throughout the project.

WP3 - A2 - Mapping local Ecosystems & Communities

Based on the Baseline definition, partners will seek to map out the potential communities and their respective ecosystems in their regions according to the considerations and characteristics highlighted by this first activity. Identifying adequately these key characteristics will be critical for the success of the mapping activity and its overall usefulness.

WP4 - Learning Toolkits Syllabus

The base definition in this report will also provide the foundation for the development of the Learning Toolkits Syllabus in Work Package 4. The Learning Toolkits Syllabus is aimed at creating a relevant and coherent syllabus through a co-creation process with the Learning community that will be the recipient end-user, staying consistent with the user-centric principle of the ULALABS project. This Learning Toolkit will be developed in distinct phases, departing from the academic context but incorporating knowledge from the stakeholders as well as newly generated knowledge produced during the Pilot implementation resulting in an enhanced product of added value.

Introduction and Background

The challenges of urbanisation put cities in a critical position for successfully addressing the 2030 Agenda, emphasising the interlinked roles of citizens, civil society, business, planners and decision makers in sustainability transformation processes, initiatives, and solutions (Juhola et al., 2020; Köhler et al., 2019; Linnér & Wibeck, 2019). The European Union has set ambitious targets for climate neutrality through initiatives such as the EU mission on [Climate-Neutral and Smart Cities](#), the mission on [Adaptation to Climate Change](#), The [New European Bauhaus](#) and the [2021 – 2027 Horizon Europe Research and Innovation programme](#). These initiatives come with significant funding, yet there is an explicit expectation and belief that in order for EU to reach its ambitions, upscaling, spreading of knowledge, and interregional collaboration is essential for Europe to reach the political ambitions for climate neutrality and sustainability.

Noble, successful, or even groundbreaking as many of the existing efforts may be, they mostly remain as fragments, since we lack a comprehensive understanding of the potential for sharing methodologies, processes, and tools in different cultural and geographic settings (Köhler et al., 2019; Sengers et al., 2019). In the previous Horizon 2020 funding programme, replication of pilots was a central aspect of the scaling strategy, yet as most cities and regions have experienced, replication is a strategy that is difficult to realise across political, cultural, economic, geographic, and institutional differences. Hence, there is a need for new strategies that can enable and accelerate the building up of knowledge and capacities to act across Europe. Similarly, Erasmus+ programme has supported initiatives for the *exchange of good practices* in education (Erasmus+, 2020). ULALABS is an intervention that seeks to contribute to the acceleration of urban sustainability transformation through a focus on fostering transformative learning through Mutual Learning Communities.

The vision of the ULALABS consortium is to lay the groundwork for a cross-European virtual living lab to build capacities for urban sustainability transformations through cross-case mutual learning communities. ULALABS builds upon existing research and innovation initiatives of ECIU member universities and expands these existing collaborations by investigating how to perform the linking between established living labs and citizen science projects run by the involved partner institutes and their local and regional ecosystems. We envision that the vast experience and well-established networks in each living lab allows for learning that allows for upscaling, rescaling adoption of knowledge, competencies, and capacities (Leminen, 2013; Perera & Tang, 2013) across Europe. The proposed framework for Learning Communities and transformative learning for urban sustainability transformations draws on the existing literature of the challenges of upscaling knowledge and experiences from living labs and workshops organised as part of the ECIU SMART-ER seed project [ECIU-UTC](#). The findings from this project can be found in the ECIU Position Paper on Living Labs and Experimentation Spaces (Kourkoutas et al., 2024). In the report, the consortium has outlined what we envision as central aspects for accelerating urban sustainability transformations. The base definition for transformative learning and mutual learning

communities presented here, outlines the operationalisation of these key methodologies for accelerated scaling of urban sustainability transformation.

Learning for sustainability transformations as situated processes

In our definition, learning is distinct from terms such as knowledge transfer/exchange, information transfer/exchange, and replicability. Whereas these terms indicate an almost seamless transfer and exchange of knowledge and information, we argue that this is the crux of the problem – that information, knowledge, experiences, and practices cannot move seamlessly from one context to another. Therefore, this project is particularly interested in developing methods and tools that enable information, knowledge, experiences, and practices to be shared and subsequently adapted and applied in new contexts (Joan Batalla-Bejerano et al., 2023). This is in line with the project's ambition to encourage and enhance learning across Living Labs (or experimental urban spaces) or distributed learning as it is called in the proposal.

Scholl et al. (2022) argue that a possible explanation for the less than desired impact of living labs system-wide can be found in the focus of most urban living labs (ULLs) on local, highly contextualized knowledge. We do not think that the problem is that ULLs are highly context specific. Rather, we argue that for the knowledge and experiences of a specific ULL to travel to new projects and contexts we need theoretically informed and well-grounded learning methodologies. The assumption that it is merely a problem of sharing, exchanging, and transferring knowledge, information, and experiences is a major obstacle for the scaling of ULL solutions, knowledge and experiences. There is thus a missing link between the highly contextualised living lab and system-wide transformations through diffusion and upscaling beyond the geographic boundaries of the lab. Scholl, thus argue for a process of de- and re-contextualisation (Scholl et al., 2022).

De- and re-contextualisation of knowledge and experiences according to Scholl et al is achieved by joint reflection of scientific experts and local practitioners on the results of completed experiments and the set-up of new experiments. As experiments are followed from beginning till end, learning can be comprehensive, including failures as well as successes, and with ample attention for local conditions and context factors. A transformative focus is ensured by including sustainability and social inclusion as goals in the central learning agenda, while at the same time allowing for a diversity in interests by respecting local learning agendas and local interpretations. This also includes respecting other interests in addition to learning, such as local agenda-setting and mobilisation of local actors. Finally, the structure of the learning network is flat, with similar roles and contributions expected from all city partners in the network, to promote mutual and joint learning. Local experimentation capacities and competences are brought to an equal level by offering in-person advice and a range of support tools.

De-contextualization refers here to what needs to happen with the knowledge and insights that are taken to the learning spaces from the local living lab experiments. By comparing them to other experiments in other places and 'stripping' them from their

embeddedness in the local context, these experiences can become more generic, recognisable and useful for future experiments in other urban contexts. By identifying and formulating these abstract decontextualized experiences together in learning spaces, researchers and practitioners support the design of new local sustainability interventions as it can both draw on local knowledge and experiences from previous interventions and decontextualized experiences provided by the local ambassador participating. Before and through the application in a new context, de-contextualised experiences are *re-contextualized again*. Their meaning needs to be made specific for the local context, the type of experiment that is designed and the actors who participate in that process. Nevertheless, this process of re-contextualizing de-contextualized knowledge offers opportunities for acceleration of experimentation and upscaling of solutions found. While the process of de- re-contextualisation is central, the question is still how this is done in practice? How do experimentations in one context become useful for experiments in different contexts? How do you decontextualise and re-contextualise?

Transformative Learning Framework

The theoretical grounding of our approach is based on Jack Mezirow's foundational work on transformative learning (Mezirow, 1991, 2009). Mezirow defines transformative learning as a process where, based on prior experiences, one attempts to interpret new situations. When a priori assumptions do not work, one is placed in a situation where changes in interpretations and perspectives can occur. Mezirow calls this perspective transformation: "*The new frame of reference would be considered more functional when it is more inclusive, differentiating, critically reflective, open to other points of view, and integrative of experience*" (1991:3). Transformative learning is about changing one's meaning perspectives and Mezirow sees critical reflection as crucial in this process without it, transformative learning will not occur.

Transformative learning theory seeks to explain how transformative learning occurs in adults. According to Mezirow, it is important to understand that adult learning differs from children's learning. Following his definition, adult learning is about changes in meaning perspectives. Mezirow's main thesis is that when faced with new knowledge or unfamiliar situations, the learner will seek meaning by interpreting and reinterpreting the new by relating it to their own experiences. Individual filters reflect each person's previous experiences. Whether or not transformative learning is occurring is thus not a matter of the amount of information, knowledge, and expertise a learner receives, but how the learner is able to make meaning of it in relation to their own experience.

Examples of occurrences where information, knowledge and experiences are transferred, which leads to limited learning, are for example, when a practitioner visits a project and concludes that "this is not relevant/applicable/possible" in my own context. This is an example of transfer without learning. The practitioner is unable to make meaning of the information and knowledge they receive because they are unable to relate it to their own experiences. The inability to make meaning is, however, not only a limitation for the learner. The sending end of information, knowledge, and experience clearly also is not

able to convey the potential in ways that are relatable to the learner. Thus, transformative learning seeks to challenge the clear division between sender and receiver and rather emphasizes a communicative and reflexive learning environment (Unger et al., 2023). Hence, for transformative learning to occur, we need to focus on both the sending and receiving of information, knowledge, and experience, not as a one-way process but as a collective and communicative exercise in which collective critical reflection constitutes an important aspect of the process.

What is at the centre of Mezirow's approach is that learning leads to a *transformation of practice* based on creating new meanings through interpretation and reinterpretation of knowledge and information in relation to one's own experience and practice. Thus, the purpose of learning across different living labs is not so much the sharing of information, knowledge, experience, and practice but how this sharing is interpreted and reinterpreted to transform practices. The figure below illustrates the transformative learning practice as conceived in this project.

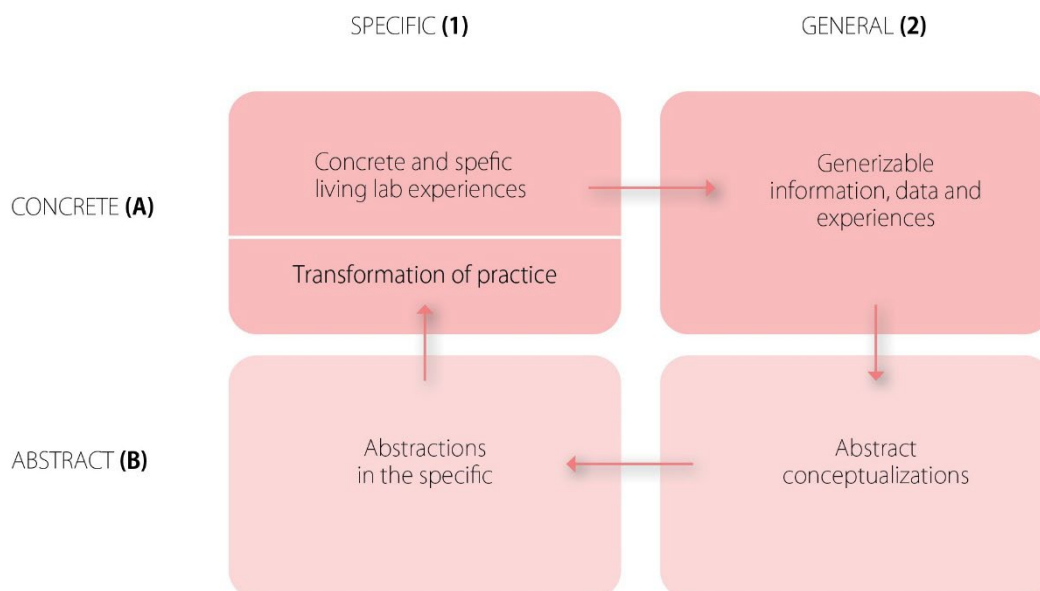


Figure 2 - Transformative Learning Framework

The model illustrates how information, knowledge, and experiences need to be processed through critical reflections that move from the specific and concrete (A1) to the generalizable (A2), to the abstract (B2), and how these abstractions need to be applied in another concrete specific context (B1 -> A1). This process of abstraction is central to de-contextualisation and re-contextualisation. Most learning acts operate through such processes of meaning-making and it is a relational process between people, their environments, their knowledge, and experiences. Each arrow symbolizes dialogical and communicative actions. The model is inspired by how the act of translation enables the *traveling* of ideas and concepts (Anderson, 2013; Dongchao, 2014; Said, 1983). A good translator needs intimate understandings of the contexts translated from and translated

to. This is particularly relevant for *culturally specific* elements. For example, how do I explain a cultural reference familiar to one context but unknown to the other context? A translator's role is thus not only to find the exact word or phrase but to make sure that the word or the phrase gives meaning to the reader. Thus, translation is not just converting words to words but, more importantly, to give meaning in a different context.

To give an example. The international Booker Prize is each year awarded to a novel or short story from around the world and translated into English. The prize is given both to the author and the translator to emphasize not only the original work, but the act of translation itself. What a good translation requires is an ability to enable meaning-making in one context without jeopardising the original meaning. Thus, translation is a professional skill that is essential to the acceleration of sustainability transformations. The role of ULALABS is thus to facilitate the learning processes between the various living labs, by developing "translation" methods that engage the learning community members and encourage critical thinking to transform practice.

Distributed Mutual Learning Communities

Relaying information, knowledge, experiences, and practices is thus not enough; it is through the dynamic and relational interplay between actors and through interpretation and critical reflection, that transformative learning occurs. In this regard, learning communities play an essential role (Prenger et al., 2019; Stoll et al., 2006). A learning community can be defined as "*...a group of people sharing and critically interrogating their practice in ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way...*" (Stoll et al., 2006, s. 223). In short, learning communities are an organisational form to enable and facilitate transformative learning.

The concept of **Professional Learning Communities** (PLCs) emphasizes the importance of community in professional learning, focusing on collective rather than individual growth. Key features identified by theorists include shared beliefs, interaction, interdependence, concern for diverse views, and meaningful relationships (Stoll et al., 2006). Central to this notion is an ethic of interpersonal caring among those in a learning community, fostering mutually supportive relationships and shared norms. Effective learning communities establish collaborative cultures, shifting focus from individual achievements to collective advancement.

PLCs share five key characteristics according to Stoll et al. (2006): shared values and vision, collective responsibility, reflective professional inquiry, collaboration, and group learning. Shared values and vision are crucial for maintaining a focus on student learning and ethical decision-making. Collective responsibility ensures commitment and accountability among members. Reflective professional inquiry involves continuous dialogue, mutual observation, and application of new knowledge. Collaboration extends beyond superficial help, involving joint activities and feedback, with interdependence being central. Group learning promotes collective knowledge creation and professional self-renewal. Additional characteristics identified include mutual trust, respect, inclusive

membership, and openness to external networks and partnerships, enhancing the overall effectiveness of PLCs.

In addition to the PLCs, another related concept is **Communities of Practice (CoP)**. According to Wenger et al. (2010), there are several relevant characteristics when defining a community of practice; 7 key elements in particular: 1) Design for evolution, 2) Open a dialogue between inside and outside perspectives, 3) Invite different levels of participation, 4) Develop both public and private community spaces, 5) Focus on value, 6) Combine familiarity and excitement, 7) Create a rhythm for the community. These 7 elements complement the previous considerations and offer additional insight to the formation of Learning Communities

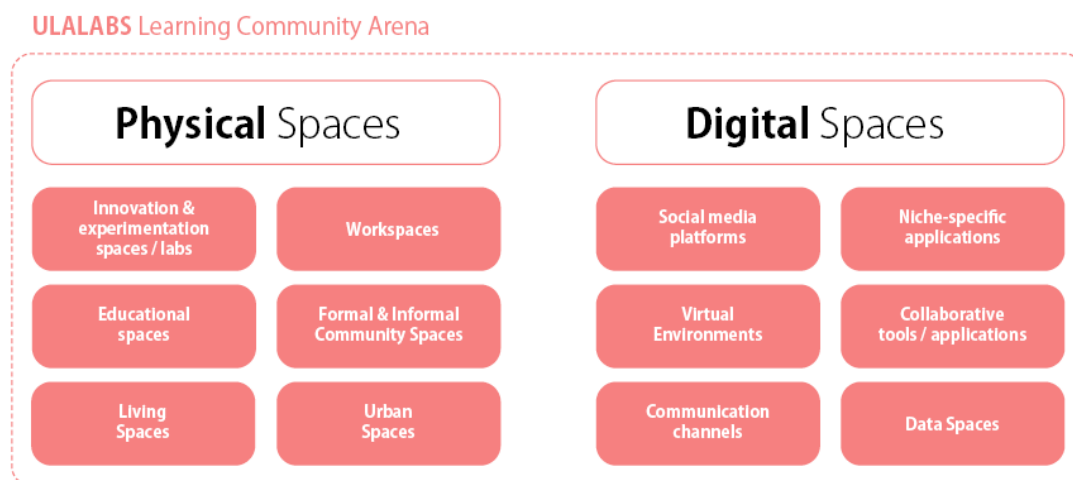
In the context of the ULALABS project, we decided to employ the concept of **Mutual Learning Communities (MLCs)**, which is increasingly being used by key organizations such as EnoLL, the Assembly of European Regions or the European Commission in the latest Horizon calls. Although similar to PLCs, the MLCs advance the idea a step further. MLCs can be understood as a framework that promotes shared learning experiences among individuals to enhance their learning and personal skills. The value of the Mutual Learning Community lies in its ability to create a common identity among participants and permit each member to bring their diverse skills and backgrounds to the community of learners. From the outset, this fosters a deep sense of passion and motivation as members can share and develop their topic of interest, which motivates them and makes them fully committed to the treatment of this topic, both project-development-wise and the knowledge-sharing experience itself. One key point is that MLCs can be found and developed anywhere, referring to both academic and professional environments (or others). The MLC's implementation focus is to engage individuals willing to develop and co-create their own curriculum while collaborating on a common research or project challenge from diverse perspectives. Unlike traditional teamwork methodologies, an MLC does not necessarily consist of individuals with similar backgrounds but rather comprises individuals with different trajectories who share a common interest and want to work towards a common goal.

Finally, a last typology that needs to be considered is the **Distributed Learning Communities (DLCs)**. Wilson (1998) sees DLCs as decentralized learning groups focused and interacting enough to form a stable community and that communication technologies can support such learning communities in their efforts. The term 'distributed' is added to distinguish the construct from traditional, centralized groups of learners, as, for example, found in many typical classrooms but also in geographical spatial terms where not all members are located in the same space/city/region/country. In operational terms, it also suggests that learning, decision-making, agenda-setting, and maintaining group cohesion are distributed to group members and not controlled by an outside authority or manager. Transformative communication and learning are the norm, with both the sender and receiver of messages changed by the interaction (Pea, 1994). A DLC is generally characterized by the following traits: a) Distributed control, b) Commitment to the generation and sharing of new knowledge, c) Flexible and negotiated

learning activities, d) Autonomous community members, e) High levels of dialogue, interaction, and collaboration, f) A shared goal, problem, or project that brings a common focus and incentive to work together.

The proposed **Distributed Mutual Learning Communities** are envisioned to be composed of members of different living labs. The DMLC for transformative learning emphasizes a dialogical and communicative approach. The learning community is mainly concerned with facilitating the processes through A2, B2, and B1 in Figure 2. Rather than focusing only on the sharing of information, knowledge, and experiences between practitioners in living lab X and Y, the learning community model proposed here focuses on mutual identification of relevant information, knowledge, and experiences in living lab X that is meaningful to living lab Y (A2). This is very much a reflexive communicative activity between practitioners in Living Lab X and Y. Identification of relevance in A2 is then needed to be partly de-contextualised and abstracted (B2) in order to move to B1 where the information, knowledge, and experiences are given new meaning be relevant specifically in Living Lab Y. Then practitioners in Living Lab Y will implement new practices in A1, and the learning loop can repeat itself.

In order to define the Learning Community concept and start to visualize it, it is necessary to consider and identify the different available environments and tools, that is to say, Learning Spaces where the Learning Community can have the right (physical) conditions to be implemented and flourish. The exact features that an appropriate learning space for a mutual learning community must have will not be analysed here and, to a certain extent, fall out of the scope of the ULALABS project. However, in any case, we need to identify spaces that can have diverse community learning activities. Work Package 2 realized an initial task of mapping and analysing different experimentation and innovation spaces that could be one of those physical places where multiple interactions can occur. When conceptualizing this, it is necessary to understand that any space can be a potential learning space. In the urban context, we can revise and reconsider what spaces qualify as such. Figure 3 shows a first overview of both physical and virtual spaces that could comprise the Learning and experimentation Arena for the community.



Physical Spaces

The importance of the physical environment in facilitating compelling learning experiences is a crucial aspect to be considered as highlighted by the case-studies analysis (WP2) and relevant studies that show the impact of the learning environment on the learning experience and knowledge retention (Byers et al., 2018) . The evidence strongly suggests that technologically enhanced learning environments positively and significantly impact student learning. Another point to be highlighted is the distinction between indoor and outdoor learning spaces, specifically when rethinking our cities and our living labs or referencing urban living labs. The role of the environment is crucial, as it can influence learning processes. By considering the impact of the urban environment on physical and, importantly, mental health, we can also design spaces that foster community engagement and active participation in learning processes and support individuals' well-being. Environments promoting relaxation, comfort, and a sense of security can contribute to a positive mental state and enhanced community experience within the given physical space. It is imperative to recognize the interplay between the physical environment and mental health to ensure the well-being of all individuals involved in the community learning experience.

Virtual Spaces

It is also important to mention the opportunity that virtual environments/spaces present for Learning Communities and their complementarities with traditional methods. When designing or implementing a virtual environment to engage knowledge within Learning Communities, one crucial aspect is the balance between virtual and physical interactions and understanding the roles of individuals within the Learning Communities. When designing or deciding the ideal virtual environments and tools, it should seek to guarantee factors such as high presence, immersive experiences, user-friendly interfaces, and trust through effective communication channels. Virtual environments can significantly enhance distributed Learning Communities by providing a digital space where community members can collaborate, share knowledge, and engage in meaningful interactions, bridging geographical and cultural distances and enabling remote collaboration when necessary.

Added Value for the participant institutions and potential learners

Implementing a mutual learning community within the ULALAB context (or other) presupposes the generation of knowledge under a new paradigm that can have benefits over traditional methods and both for the diverse institutions as well the learning community participants' personal skills development:

For the institution:

- Increased student and faculty engagement and motivation
- Increased stakeholder engagement and territorial collaboration
- Potential to address social and environmental challenges through collaborative work and challenge-based methodologies.
- Enhanced reputation and visibility for the institution as an innovative leader in education seeking local impact but also contributing to global knowledge shared agendas
- Positive impact on local and/or global economies through the development of skilled workers and innovative solutions
- Increased social capital through the development of a community of learners and practitioners resulting in improved collaboration and knowledge-sharing among participants

For the learner:

- High-quality and engaging educational experience with a local and international component
- Increased access to innovative learning opportunities and methodologies
- Development of new skills among participants
- Potential for long-term impact on participants' personal and professional growth
- Communication, cooperation, project-managing and leadership skills development
- Intellectual networking, while having the possibility to interact with different background-and-expertise participants with similar interests

For the learning process:

- Capacity to adapt to local conditions and evolve over time.
- Promoting creativity and true open innovation.
- Crossing of traditional disciplinary and conceptual boundaries and power structures
- Appreciation of diversity, multiple perspectives and epistemic issues.
- Community members who are responsible and skilled at diagnosing and addressing their learning needs; and personal learning paths.

Considerations

Although learning communities appear to be a promising tool, there are also pitfalls. A study on networked Professional Learning Communities (PLCs) in the Netherlands (Prenger et al., 2019) highlights the potential and the challenges of implementing them. The research focused on the perceived effects of 23 networked PLCs on professional learning within schools, revealing moderately positive results despite organizational challenges such as time management, workload, and varying levels of participation. Participants expressed enthusiasm for the PLCs, particularly valuing exchanges with other living labs, contributing to their professional development. However, issues like insufficient time and inconsistent participation negatively impacted satisfaction. The study found that participants spent considerable time on PLC activities, reflecting their motivation and commitment. External coaches confirmed that participants acquired knowledge and skills, although the extent varied. The study also noted that participants' professional attitudes improved, likely due to increased awareness of their practices within the living labs.

The research further explored the application of knowledge and skills gained from PLCs, finding that while most participants produced materials during PLC activities, they did not immediately apply these in their practice. The study identified that knowledge and skills were shared within living labs through workgroups and material exchanges. The networked PLCs facilitated professional development and knowledge transfer despite professional, geographical, and organizational challenges. The study suggests that the initial steps toward changes have been made but emphasizes the need for long-term research to optimize and sustain these changes. Factors such as facilitation, PLC guidance, and group characteristics are thus essential when assessing the effectiveness of professional learning, highlighting the importance of solid attachment between different living labs and the network for successful knowledge brokerage.

An often-encountered critique for DLCs are the *Short-term inefficiencies* that they present. Just as a town meeting can be more laborious and inefficient than a streamlined managerial process of getting from A to B, so can DLCs can be more inefficient and indirect than controlled learning environments. In the absence of a rigid structure DLCs may tend to "muddle through" processes with its share of redundancies, inefficiencies, lack of focus, and lengthy processes. In the long term, however, DLCs may be a more efficient and meaningful route toward learning. Another consideration is the perception of a *lack of central control* where DLC's decentralized control can be a handicap. The leadership and vision of a charismatic leader element, in many cases, can mobilize community resources and stimulate purposive action. At times, the unwieldy, amorphous character of DLCs can frustrate those who expect well-defined, focused direction in the learning or development process.

Along the same line, another consideration to be made is the *lack of predictability* that DLCs can present, which can frustrate the intentions of the participants and managers and their ability to plan. The evolving nature of DLCs seems to have a mind of its own,

presenting characteristics of complex, adaptive systems. In that sense, complex adaptive systems are defined by 1) the absence of imposed centralized control, 2) the autonomous nature of subunits, 3) the high connectivity between the subunits, and 4) the web by nonlinear causality of peer-to-peer interactions.

One last concern that Wilson (1998) points out is that in terms of perception, DLCs can be considered more learner-centred than most designed instructional systems since community members must take responsibility for their learning. However, "centeredness" is found in the community rather than in the individual learner. Ideally, members lacking metacognitive skills may participate and receive support from the community, which is the level where the learning agenda is decided. The thought of individuals isolated, setting individual goals, and pursuing those learning goals individually is contrary to our conception of a distributed learning community. So, we need to think of DLCs not simply as tools for self-directed learning but also as supportive communities wherein a variety of learning goals may be pursued, some individual and some shared throughout the process.

Conclusions and insights

The successful implementation of Mutual Learning Communities for Transformative Learning between living labs to accelerate urban sustainability transformations involves several key aspects. Firstly, developing distributed learning methodologies is crucial, as it allows for sharing and adapting information, knowledge, experiences, and practices across different contexts. This approach addresses the challenge of replicating methodologies and tools in diverse cultural and geographic settings. The ULALABS project emphasizes the importance of fostering transformative learning through interpersonal and interregional learning communities, leveraging existing living labs' extensive networks and experimental capacities. By focusing on cross-case learning and the interplay between technological, social, cultural, economic, political, and environmental factors, the project aims to enhance urban transformation capacities and generate innovative solutions in an emergent distributed manner.

Additionally, the ULALABS project highlights the need for joint reflection and re-contextualization of experiences learned from local experiments. This process involves scientific experts and local practitioners collaboratively analysing the results of completed experiments and setting up new ones, ensuring comprehensive learning that includes successes and failures. A transformative focus is maintained by incorporating sustainability and social inclusion goals into the central learning agenda while respecting local learning agendas and interests. The learning network structure is designed to be flat, promoting mutual and joint learning among all partners. Equalizing local experimentation capacities through in-person advice and support tools facilitates effective knowledge transfer and application. These strategies collectively aim to build a cross-European virtual living lab, enabling the scaling and adaptation of innovative solutions to accelerate urban sustainability transformations.

As the project progresses, the learning communities for distributed learning across living labs must overcome some key challenges. The base definition for transformative learning communities identifies several vital aspects for establishing effective mutual learning communities (MLCs) between different living labs to accelerate urban sustainability transformations. First, developing distributed learning methodologies is crucial, as it facilitates sharing and adapting information, knowledge, experiences, and practices across diverse cultural and geographic contexts. This approach addresses the challenge of replicating methodologies and tools in varied settings. Engaging scientific experts and local practitioners in joint reflection on the results of completed experiments and the setup of new ones ensures comprehensive learning, encompassing both successes and failures, with attention to local conditions and context factors. De-contextualizing experiences from local experiments and re-contextualizing them for new contexts helps make the knowledge more generic and applicable. Incorporating sustainability and social inclusion goals into the central learning agenda ensures a transformative focus, respects local learning agendas and interests, and allows diverse perspectives and priorities

Establishing a collaborative network with equal roles and contributions from all partners promotes mutual and joint learning, encouraging joint problem-solving and innovation by leveraging the diverse strengths of each living lab. Providing practical support through tools and direct advice helps to equalize experimentation capacities across different labs, ensuring that all participants have the necessary resources to implement and adapt innovative solutions effectively. Leveraging existing networks and creating new connections between living labs enhances the exchange of knowledge and best practices, aiding in scaling successful initiatives and their adaptation to different contexts. Emphasizing critical reflection and dialogical learning processes is essential. It involves moving from specific and concrete experiences to general and abstract understanding and back to specific applications, ensuring that learning is a relational process between people, their knowledge, and experiences. Recognizing and addressing the variations in cultural, socio-economic, and geographic contexts is important, necessitating the development of flexible and adaptive strategies that consider each participating living lab's unique needs and conditions. By focusing on these aspects, the ULALABS project aims to build a cross-European virtual living lab that enables the scaling and adaptation of innovative solutions, thereby accelerating urban sustainability transformations.

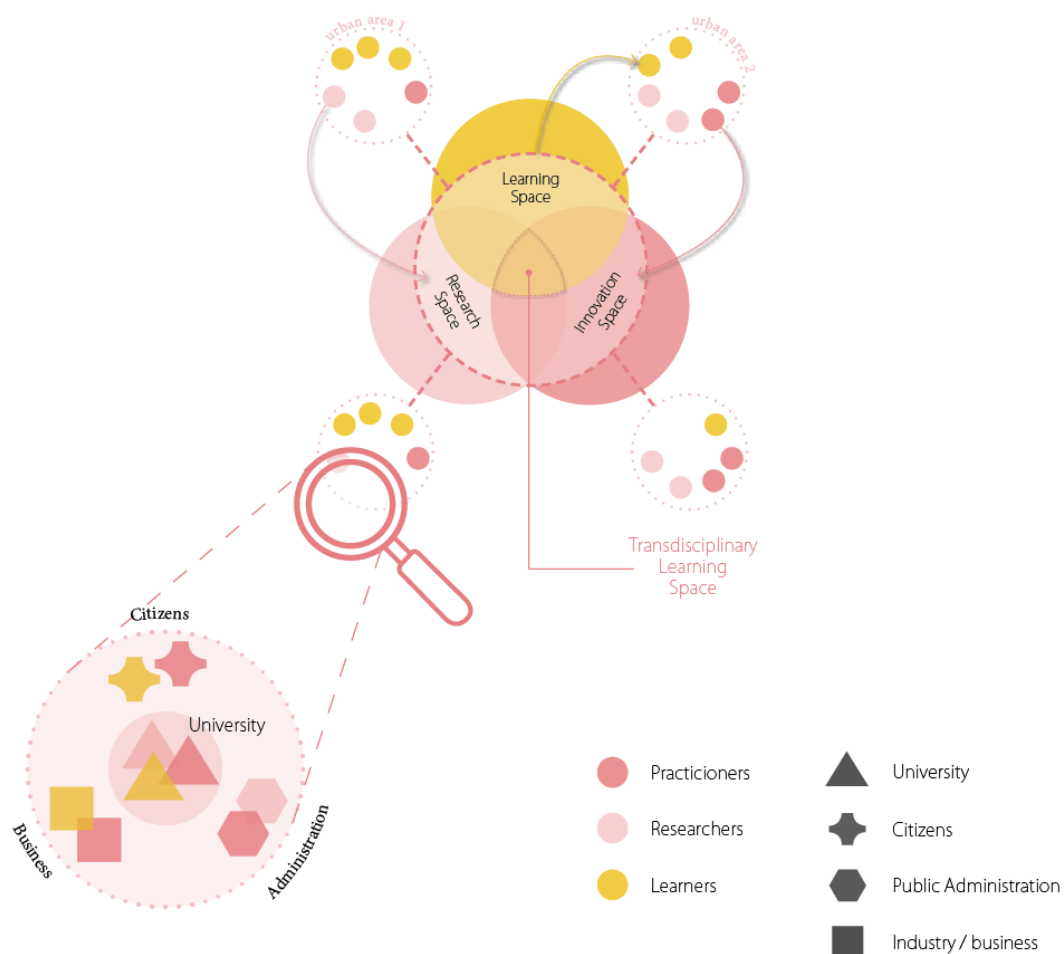


Figure 4 - the distributional aspect of the ULALABS Learning Communities

Moving forward

ULALABS will focus on several key aspects for establishing effective Distributed Mutual Learning communities between different living labs to accelerate urban sustainability transformations:

1. **Distributed Learning Methodologies:** Developing methods that facilitate the sharing and adaptation of information, knowledge, experiences, and practices across diverse cultural and geographic contexts is crucial. This approach addresses the challenge of replicating methodologies and tools in diverse settings.
2. **Joint Reflection and Re-contextualization:** Engaging scientific experts and local practitioners in joint reflection on the results of completed experiments and the setup of new ones ensures comprehensive learning. This process includes both successes and failures, with attention to local conditions and context factors. De-contextualizing experiences from local experiments and re-contextualizing them for new contexts helps make the knowledge more generic and applicable.
3. **Transformative Learning Focus:** Incorporating sustainability and social inclusion goals into the central learning agenda ensures a transformative focus. This involves respecting local learning agendas and interests, allowing for a diversity of perspectives and priorities.
4. **Flat Network Structure:** Establishing a collaborative network with equal roles and contributions from all partners promotes mutual and joint learning. This structure encourages joint problem-solving and innovation, leveraging the diverse strengths of each living lab.
5. **Support Tools and In-Person Advice:** Providing practical support through tools and direct advice helps to equalize experimentation capacities across different labs. This ensures that all participants have the necessary resources to implement and adapt innovative solutions effectively.
6. **Building Strong Networks:** Leveraging existing networks and creating new connections between living labs enhances the exchange of knowledge and best practices. This networked approach helps to scale successful initiatives and adapt them to different contexts.
7. **Critical Reflection and Dialogical Learning:** Emphasizing critical reflection and dialogical learning processes is essential. This involves moving from specific and concrete experiences to general and abstract understanding, and back to specific applications, ensuring that learning is a relational process between people, their knowledge, and experiences.

8. **Addressing Contextual Challenges:** Recognizing and addressing the variations in cultural, socio-economic, and geographic contexts is important. Developing flexible and adaptive strategies that consider the unique needs and conditions of each participating living lab is necessary for effective collaboration.

By focusing on these aspects, the ULALABS project aims to build a cross-European virtual living lab that enables the scaling and adaptation of innovative solutions, thereby accelerating urban sustainability transformations. But to ensure active participation and sustained commitment from living labs, ULALABS should focus on several key strategies for the learning communities:

1. **Clear Vision and Goals:** Establishing a clear and compelling vision for the learning communities, along with specific, achievable goals, helps to align the efforts of all participating living labs. This shared vision fosters a sense of purpose and direction.
2. **Engagement and Ownership:** Involving living labs in the decision-making process and giving them a sense of ownership over the project can increase their commitment. This includes involving them in setting goals, planning activities, and evaluating progress.
3. **Effective Communication:** Maintaining open and regular communication channels is crucial. This can be achieved through regular meetings, updates, and collaborative platforms that facilitate information sharing and feedback.
4. **Support and Resources:** Providing adequate support and resources, such as funding, expertise, and technological tools, ensures that living labs have what they need to participate effectively. This also includes offering training and capacity-building opportunities.
5. **Recognition and Incentives:** Recognizing and rewarding the contributions of living labs can motivate continued participation. This can be done through formal recognition programs, showcasing successes, and providing incentives for active engagement. Additionally, recognizing and acknowledging the skills developed within learning communities by providing official credentials or certificates adds further visibility and validates the participants'.
6. **Flexibility and Adaptability:** Being flexible and adaptable to the needs and contexts of different living labs helps to accommodate their unique challenges and opportunities. This includes being responsive to feedback and make adjustments as needed.
7. **Building Relationships:** Fostering strong relationships and trust among participants is essential. This can be achieved through team-building activities, collaborative projects, and creating opportunities for informal interactions.

8. **Monitoring and Evaluation:** Regularly monitoring progress and evaluating the impact of activities helps to keep the project on track and identify areas for improvement. This also provides an opportunity to celebrate successes and learn from challenges.
9. **Sustainability Planning:** Developing a sustainability plan that outlines how the project will continue beyond initial funding and support helps to ensure long-term commitment. This includes identifying potential funding sources and building institutional support.
10. **Make it playful and engaging:** Adding an element of playfulness to learning communities enhances engagement and motivations. By incorporating dynamic activities, challenges, and opportunities for friendly competition, learning communities create an environment where participants can learn, socialize, and develop skills while working on meaningful projects. Making the entry process into mutual learning communities engaging is essential to encourage participation. By eliminating unnecessary barriers and administrative complexities, mutual learning communities ensure that the focus remains on the learning experience and the projects at hand.
11. **Visibility:** Visibility is crucial for the success and growth of learning communities. In order to attract potential participants, it is important to showcase ongoing members and initiatives. This visibility can be achieved through different means (physical or digital) and help potential participants learn more about the existing community and its characteristics and initiate contact for further information.
12. **Openness and transparency:** Open Science is an inherent aspect of Learning communities. It emphasizes the sharing of scientific knowledge and outputs with the wider community which should be openly accessible and disseminated through adequate platforms/spaces. This openness promotes collaboration, feedback, and engagement from a broader audience, enriching the scientific discourse and encouraging further exploration.

By implementing these strategies, ULALABS can create a supportive and engaging environment that encourages active participation and sustained commitment from living labs, ultimately contributing to the success of urban sustainability transformations.

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