Guidelines for LL Establishment & Facilitation

WP4: ENABLING CONDITIONS FOR LONG-TERM POLLINATOR RESTORATION AND LIVING LABS
TASK 4.1: ESTABLISH LIVING LABS

Deliverable D4.1

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RestPoll
Restoring Pollinator habitats across European agricultural landscapes based on multi-actor participatory approaches

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Summary

This document provides a starting point for the organization of RestPoll Living Labs (LLs) in Europe (Germany, Hungary, Spain, Italy, Latvia, France, UK, Denmark, Switzerland, Greece, Ukraine, Ireland, Netherlands, and Sweden). Living Labs (LLs) are ecosystems that foster innovation by actively involving users in the co-creation process. They bridge the gap between research and real-world application. Living Labs operate within specific territories and promote iterative feedback, rapid prototyping, and joint value creation. By integrating diverse stakeholders, such as citizens, farmers, researchers, industry, companies, and government agencies, Living Labs pave the way for impactful, user-centered innovations (Schuurman et al., 2015).

The overall aim of RestPoll is to develop LLs in the restoration network to co-design, experiment, and demonstrate best practices for pollinator restoration measures across Europe. In other words, the objective of RestPoll is to restore and connect pollinator habitats in European agricultural landscapes through a participatory approach and position Europe as a global leader in pollinator restoration. RestPoll will establish a European network of LLs in 14 countries using a multi-actor approach. These 17 LLs have different approaches and situations, 10 of which are non-existent (please refer to Appendix A for information on non-existing LLs) and 7 of which are existent. Countries such as Germany and the UK have more than one LL established for different approaches, which explains why 14 countries have 17 LLs. The Living Labs will serve as a platform for participatory experimentation, demonstration, and learning, and for assessing the effectiveness of both bottom-up (management/stakeholders-driven) and top-down (policy-driven) pollinator restoration measures. The goal is to identify effective methods to engage with public and private organizations, and civil society, at different levels of governance, and accelerate the transformation towards pollinator-friendly agricultural landscapes in line with environmental and societal needs in Europe. The guidelines for the LLs are continuously evolving to adapt to the real-life context of the LL and the RestPoll project. They will be monitored and revised regularly based on input from project partners and LL stakeholders.

This document begins with an introductory Chapter 1, which outlines the context, objectives, and intended audience of RestPoll LLs. Chapter 2 delves into the conceptual and methodological approaches of RestPoll LLs. Detailed instructions for establishing and operating RestPoll LLs are elucidated in Chapter 3. Furthermore, Chapter 4 offers specific guidelines including Governance, Designing and Structuring Meetings in Living Labs, Principles for Annual RestPoll LL Workshops.

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1. Introduction

1.1 Context of the document

These guidelines are intended to guide the establishment and monitoring of Living Labs (LL) of the RestPoll project. In particular, this document has been developed in parallel and in interaction with the methodologies for the evaluation of WP1, WP3, WP4, WP5, and WP6. The continuous interaction between the work packages will ensure that the overall methodology and its application will serve to develop optimal combinations of pollination restoration measures and bring them to scale (in the continuum plot-farm-region) in the European context. The LL guidelines is a living document and allow for differences in the real-life context of each LL. The approach will therefore be continuously revised based on input from project partners and LL stakeholders during and after the implementation of the activities. Interim updates and adjustments to this document are foreseen when a specific RestPoll project task is completed or when there are updates related to the LLs. In addition, each LL will be informed of the upcoming LL meeting planned by the RestPoll consortium at least one month in advance of the event date and a guideline will be created in line with the specific needs of each LL. This will, for example, provide more clarity on the participation of certain actor and stakeholder groups in the LL, create more convenience for partners and serve to ensure the coordination of the tasks that require input from the LL's. It will also take into account and facilitate the social learning process that will take place within the LLs. Major updates to this document may be made during important periods of the RestPoll project, such as Milestones. The guidelines will be steered by the common agreements between RestPoll partners and LL actors, taking a new approach according to the needs of each LL. Therefore, while the "core concepts and methods" will remain the same in all LLs, the real-life context of each LL (different objectives, partnerships, local policies, technical constraints, cultural risks, etc.) may lead to some adaptations in implementation.

1.2 Aims and Direction

The principal aim of this document is to provide the necessary guidelines for establishing (where LLs do not exist yet), triggering, implementing, and monitoring LLs activities, while bearing in mind the diverse environmental and institutional conditions across the RestPoll case study landscapes (including different LL sites, case study regions and case study areas; see Appendix E). More specifically, the RestPoll LL guidelines aim to convey the "spirit" of an LL and provide practical information (e.g. when, what, why, where, by whom?). The role of the RestPoll LL guidelines is to provide starting material for further discussion and to help orient the various requests and needs of farmers and other LL actors (e.g. need for specific information or resources), LL leaders (e.g., need for flexibility) and WP and task leaders (e.g. comparable approaches across LLs). On behalf of the RestPoll consortium, CIHEAM-IAMM aims to moderate the discourse and guide LL leaders on both the academic requirements for action research and the more practical requirements for functional Living Labs.

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Within RestPoll, science in the Living Lab will be at the service of LL-actors, so research activities should encourage stakeholder engagement while staying within the boundaries set by academic natural and social science standards. For example, the relative brevity of stakeholder activities can avoid stakeholder fatigue and encourage continuous stakeholder engagement, which is important for both data quality (academic standards) and the effective longevity of Living Labs (requirement for functional LL). During the RestPoll project, these guidelines will be regularly updated and specific guidance will be provided to the 17 LLs within the RestPoll project. A synthesized version of these guidelines will be integrated into the RestPoll LLs Guidelines and new updates will be shared with partners. This will include a methodology for identifying combinations of approaches that are relevant to the pollination service, testing their performance, and assessing their potential for scale-up and scale-out across LLs. It will also include a cross-comparison between the six RestPoll LLs, an evaluation to assess the management process in the Living Laboratories by conducting mutually supportive studies, and to establish a network of useful connections between the LLs.

1.3 Target Audience

RestPoll is a transdisciplinary project. The audiences for this document are (1) LL leaders and stakeholders involved in RestPoll Living Labs, and (2) researchers from different disciplines. This document provides a theoretical and practical introduction to Living Labs and an overview of activities that need to be organized in Living Labs. Figure 1 shows how the needs of LL actors, LL leaders, and research partners are navigated and unified in RestPoll Living Labs.

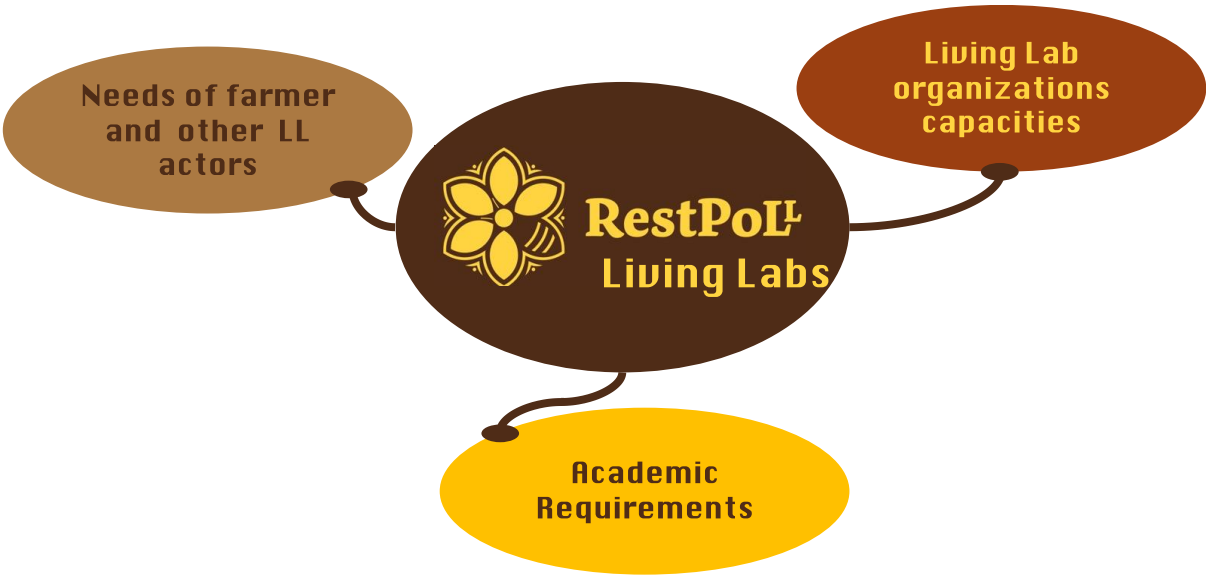

Figure 1: Navigating and unifying the needs of LL-actors, LL-leaders and research partners in RestPoll LL

1.4 Activities and Participation in the RestPoll LLs

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Stakeholder engagement in the Living Labs will be carried out within the context of WP4 (*Enabling long-term pollinator conservation and living labs*) tasks and related tasks in other work packages. The structure of RestPoll is flexible and allows LLs to self-organise, i.e. it does not impose stereotyped phenomena and methods within certain boundaries. Each LL in RestPoll has the flexibility to organise themselves individually according to their own goals and needs.RestPoll members must balance project requirements with self-organization process taking place in LLs.

Given the critical nature and pressing timeline of the research topic amidst significant uncertainties, adopting a post-normal approach to science becomes imperative (Ravetz, 2002). This approach relies heavily on stakeholder viewpoints rather than exclusively on what is traditionally considered factual within the realm of "normal" science. However, working with these perspectives presents challenges, particularly concerning the difficulty of replicating stakeholder activities such as workshops, and ensuring the representativeness of participating stakeholders. While the involvement of a Living Lab (LL) representative board (see 3.2.3) may enhance representativeness and reproducibility to some extent, it does not entirely mitigate these challenges. As researchers and scientists, it is our duty to meld perspectives with empirical data, especially concerning the tangible impacts of pollination restoration practices and innovations across social, economic, and environmental spheres, where evidence remains fragmented (Levard et al., 2019). Integrating diverse perspectives with concrete data, such as findings from field experiments, is essential for navigating the dual imperatives of societal demands, such as the need for sustainability transitions within LL, and scientific rigor, including adherence to academic standards (see Figure 1).

2. RestPoll LLs: Concept and Approach

According to the RestPoll project proposal: "The **LLs** will make the case study areas work as a unique **experimentation, demonstration and learning network** for habitat restoration across large areas of Europe (RestPoll Living Lab Network) **to facilitate farmer-to-farmer, farmer-to-researcher and farmer-to-policy maker knowledge** (traditional to new-evidence based knowledge) **exchanges**."

Therefore, "an overarching objective of WP4 is to facilitate the establishment of learning hubs, so called "Living Labs" (LLs), in all co-designed case-study landscapes. This will enhance community participation in restoration of pollinator habitats (WP1). According to the European Network of Living Labs (ENoLL), LLs are "open innovation ecosystems in real-life environments using iterative feedback processes throughout a life-cycle of an innovation to create sustainable impact". This WP will establish the RestPoll Living Lab Network and the way LLs will be managed.

These preliminary operational guidelines for Living Labs activities in RestPoll are mainly practice-oriented and illustrate the methodological pathway of the participatory

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approach. In this document, we underline the importance of referring to key research approaches such as Soft System Methodologies (Checkland and Haynes, 2019) when participatory activities involving diverse stakeholders are applied to system thinking and sustainability issues. Soft System Methodology is an approach to create structure for complex problems and develop solution or changes that are feasible or wanted by all stakeholders. In other words, Soft Systems Methodology is an action-oriented inquiry process designed to address complex situations. It guides stakeholders from understanding the problem to generating workable, consensus-based solutions. In essence, it bridges theory and practice, ensuring that practical changes are supported by all stakeholders. The involvement of different user groups in Living Labs is coherent with the Quintuple Helix innovation approach (Carayannis et al., 2012), that calls for including representatives from the public sector, universities, companies, citizens and environment-related stakeholders in the innovation process.

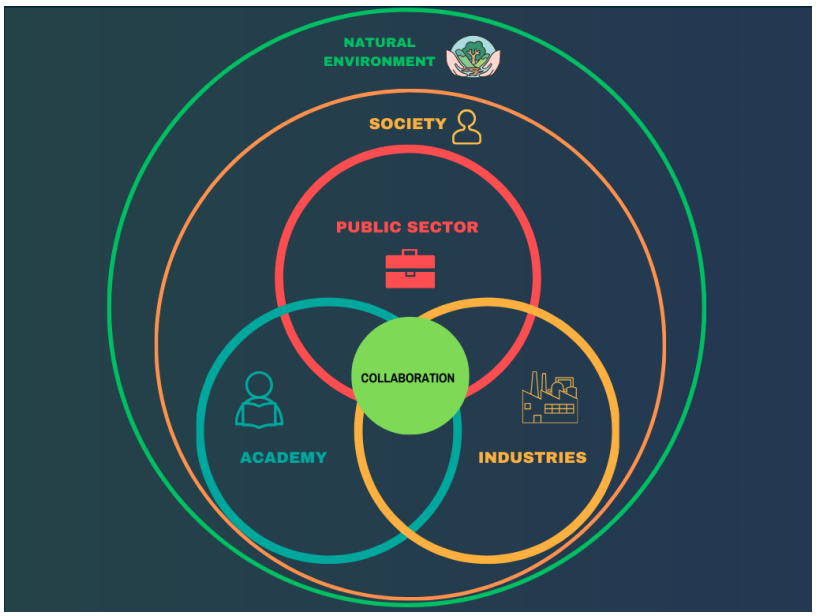

Figure 2: Quintuple Helix Model. Representation from the public sector, academia, and industry are necessary for successful collaboration.

Working with local LLs involves establishing a clear and shared vision of the innovation challenge and desired outcomes. It also requires identifying key stakeholders and their roles and responsibilities. A LL can act as an intermediary or organizer between different actors, facilitating the co-creation, prototyping, testing, and scaling of innovations in a real-life setting.

LLs offer many benefits to local communities, including promoting social inclusion, civic engagement, economic development, and environmental sustainability. However, working with a local living lab presents some challenges, such as ensuring the sustainability of the innovation process, managing stakeholders' expectations and feedback, ensuring the quality and validity of the collected and analyzed data, and assessing the impact and value of the innovation.

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Therefore, it is important to follow general recommendations when working with local LLs. To improve innovation projects, it is important to define clear scopes and objectives, choose appropriate co-creation and experimentation methods and tools, ensure transparency and accountability throughout the process, include diverse perspectives and expertise from stakeholders, create opportunities for learning and reflection, document and disseminate project results and outputs, and scale up or replicate successful innovations in other contexts.

2.1. Research background: Living Lab dynamics, approach, concepts, and methods

Living Labs will be developed through a **quasi-experimental approach** (Schuurman et al., 2013) which is articulated in **a pre-measurement, an intervention (i.e., the real-life experiment) and a post-measurement**. Thus, Living Labs are implemented throughout three building blocks, or phases of innovation development, namely: exploration, experimentation, evaluation (Evans et al., 2017).

According to Evans et al. (2017, p. 13):

- **Exploration** involves "*getting to know the 'current state' and designing possible 'future states'*";

- **Experimentation** relates to "'*real-life testing*" *of one or more proposed 'future states*'";

- **Evaluation** belongs to "*assessing the impact of the experiment with regards to the 'current state' in order to iterate the 'future state*'".

Exploration phase

In RestPoll, this phase will correspond to **moving from an innovation** idea **towards concept or prototype of the solution for users**. It is the **pre-measurement step before the intervention/experimentation** stage. In this step, the main goal is to **understand the 'current state'.** Living Labs in each case study landscape will **identify the problem related to pollinator restoration and fit its solution** as closely as possible to the problem. Through observation, participation, and in-depth interviews, the focus is put on the current problems of the target users while considering the related contexts. For RestPoll, this stage corresponds to the research activities carried out in WPs and Tasks and their outputs in terms of evidence, data and key information on the development of innovative pollinator restoration measures (see Fig. 2 & 3).

Building on an Open Innovation [1](Chesbrough & Appleyard, 2007; Dahlander & Gann, 2010; Bogers et al., 2018) approach, this phase consists of developing purposive inflows of

[1] Open innovation has been defined in 2014 by Chesbrough and Bogers as "a distributed innovation process based on purposively managed knowledge flows across organizational boundaries." This means that an organization does not just rely on their own internal knowledge, sources or resources for innovation.

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knowledge and technology to capture and benefit from external sources of knowledge (e.g., experts, literature, etc.) to enhance current management and technological developments. The exploration phase is crucial to **develop and share ideas for pollinator restoration measures to the LLs needs**, in order to come to **concrete innovation** concepts and measurable outcomes. This step is crucial to define the problem and the potential solutions. At this stage, a benchmark of the 'current state' is provided (i.e. existing pollinator restoration measures). This **'current state' benchmark allows the measurement of potential impacts** and effects of the experimentation phase in order to measure the potential effects of the innovation. As pre-measurement stage, the exploration phase will provide the 'current state' **in terms of pollinator restoration measures** throughout other WPs findings (including first ideas on 'future state' that will be initially discussed and tested within LL groups) as well as through the **assessment of relevant indicators and project Key Performance Indicators (KPIs)** that are measurable at this stage.

Experimentation phase

After having materialized specific solutions of future state into concepts (pollinator restoration measures) during the exploration stage, **the experimentation stage in LL puts these solutions to the test by developing and experimenting** with potential innovation **prototypes**. The testing will take place **in 'real-life settings'** (prototypes can be tangible or intangible services, or experience design prototypes, in general with the aim of facilitating **testing of the possible 'future state'**). Innovation will be presented as a prototype to the users in the form of a **new solution potentially triggering new habits and new contexts of use**.

The main goal of the intervention/experimentation phase in RestPoll is **to understand user reactions and attitudes to the proposed prototype solutions** (pollinator restoration measures). In so doing, it is important to carry out this phase in "as-real-life-as-possible" contexts. These interventions can be considered as 'Proxy Technology Assessments' and 'User Experience Testing'. Building on the short length of the project, this testing will be short term and involve relatively few users. The experimentation stage simulates an **envisioned 'future state' by means of an intervention**. In RestPoll, the designed solutions (in terms of restoration measures) will be put to the test, as much as possible in real-life context before proceeding to the evaluation stage.

Evaluation phase

"*What advantages is the 'future state' able to deliver in terms of the 'current state' of your envisioned user population*?" (Evans et al., 2017)

The evaluation stage of the RestPoll Living Labs consists of **evaluating the innovation**. Following the initial exploration stage (benchmarking the 'current state' of the end users) and the following experimentation stage (simulating a 'future state'), the final evaluation stage consists of generating a **'post-measurement' of the intervention and compare it**

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to the 'pre-measurement' benchmark, illustrating **potential impact and added-value created by the innovation (the monitoring of the LLs will involve more frequent assessment)**.

Evaluation of 'current state' and 'future state'

To specifically assess the performance gap between the 'current state' and 'future state' in Living Labs, the AKAP Sequence (Evenson, 1997) is adapted and proposed in RestPoll to **measure Living Labs user awareness** (and sources of awareness), **knowledge** (and testing of practices), **adoption**, and **productivity**:

A: i.e. User **awareness**

K: i.e. User **knowledge**, through testing and experimenting

A: i.e. User **adoption** of technology or practices (prototypes)

P: i.e. Changes in users' **productivity** (i.e. **Impact** on users' activity)

According to Evenson (1997), "*Awareness is not knowledge.* ***Knowledge requires awareness, experience, observation****, and the critical ability to evaluate data and evidence.* ***Knowledge leads to adoption****, but adoption is not productivity.* ***Productivity*** *depends not only on the adoption of technically efficient practices, but of allocatively* ***efficient practices*** *as well. Productivity also depends on the infrastructure of the community and on market institutions.*".

Social Learning Monitoring in RestPoll LLs

In RestPoll, LLs will use the case-study landscapes as unique learning sites and demonstration of pollinator restoration actions across a wide range of European regions. They will connect pollinator restoration to wider socio-economic issues (RestPoll Living Lab Network) and facilitate farmer-to-farmer, farmer-to-researcher and farmer-to-policymaker knowledge exchanges. The LL interactive dynamics will also target the understanding and monitoring of social learning process according to the social learning concept operationalized by Beers et al. (2016) to examine how societal actors learn to collaborate. The capacity to learn to collaborate while collaborating, signify relational and experiential processes of learning, as actors process different approaches, perspectives and values (Freeth & Caniglia, 2020). This capacity can be conceptualised as a form of social learning (Knickel et al., 2023).

In the knowledge flow framework of the RestPoll LLs, social learning is integrated in the monitoring assessment to detect how societal actors (LL participants) are exposed to information (e.g., on pollinator restoration measures), how practically this information is integrated in their knowledge, and which are the societal interactions that trigger and shape the exposition to the information and the integration of the information exchanged.

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The three components of **social learning** are:

• ***Knowledge*** as individual and shared insights and ideas, such as **new problem definitions, new solutions, changed views, and new visions** (Pahl-Wostl, 2006; Wals, 2007).

• ***Actions*** as **agreements, decisions**, and other concrete steps that individual and groups take when **making decisions and taking action** (Ison et al., 2013; Sol et al., 2013)

• ***Relations*** as **social roles, values, identities, and positions** of individuals and groups involved in collaboration (Leeuwis & Aarts, 2011; van Mierlo et al., 2010)

Following the approach of Knickel et al. (2023), in this study, we conceptualise social learning as: "learning to collaborate as an intertwined process of both individual and group learning processes".

As learning is a changing process and takes place within different phases, ex ante, mid-term and ex post assessments are indispensable to capture change over time using a mixed-mode research design to minimise biases, such as those emerging from self-reports (Ernst, 2019a,b ; Knickel et al., 2023). According to this approach, in RestPoll we apply the knowledge flow framework in LL and a monitoring assessment as it is shown in Table 1 ("RestPoll Living Labs Innovation stages, Communicative interaction and related indicators for monitoring assessment").

Knowledge flow interacting between LLs and RestPoll operational tasks

The LLs will meet and discuss building on the findings obtained from the RestPoll tasks. The outcomes from LLs discussion on innovative pollinator restoration measures and the results from the tasks will be provided and adapted to each following task.

The innovation knowledge dynamic is illustrated in Figure 3 (schematically) and in Figure 4 (analytically). Please, refer to the Excel file link in Appendix B for the calendar and enhanced version of Figure 3.

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Example: Tentative overview of Living Labs timeline interacting with other tasks that are carried out in parallel.

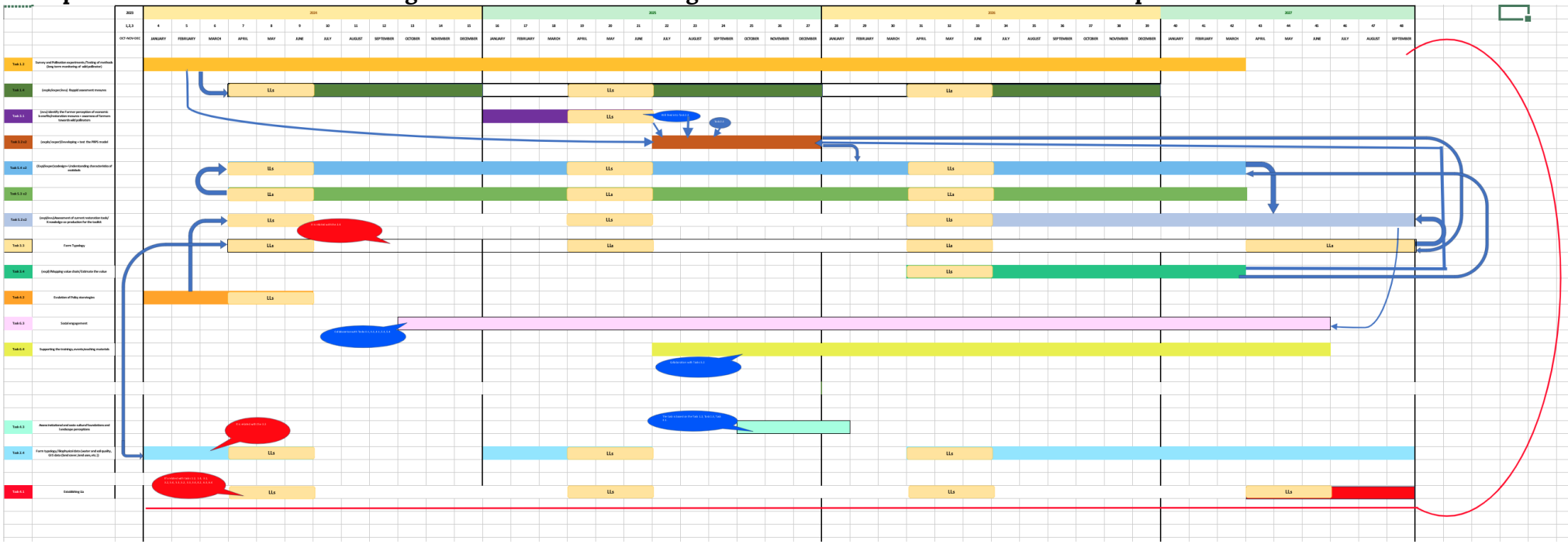

Figure 3: Living Labs tasks board and calendar. For a detailed analysis of this figure, please refer to Appendix B.

In this table, each task is represented by a different color. The light yellow colored boxes on the timeline show the times when LLs will occur in the tasks. The blue arrows between the tasks indicate the related tasks, while the added speech bubbles also show the relations between different tasks. Finally, the red line that is covering the tasks indicates that Task 4.1 covers all the tasks on this calender-board.

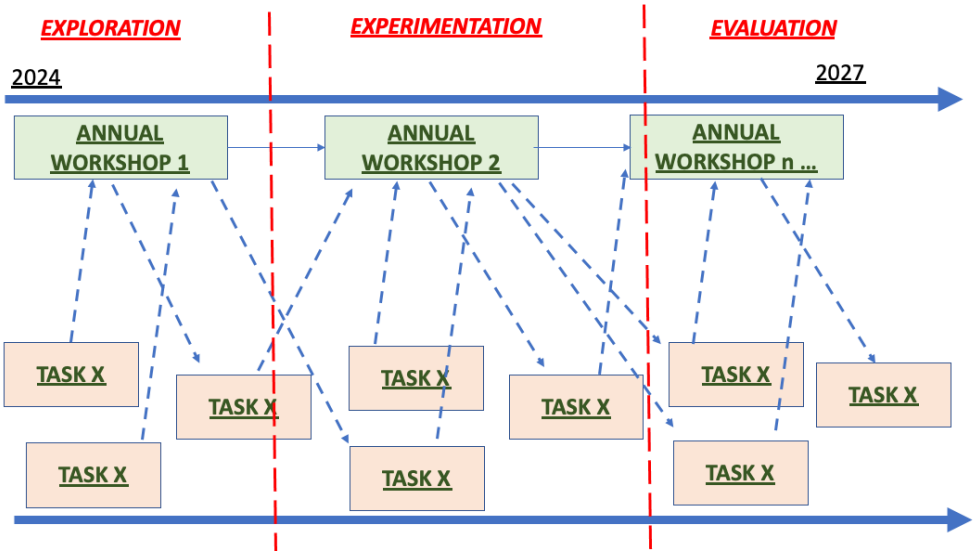

Figure 4: Living Lab tasks flow.

RestPoll Living Labs Innovation stages, Communicative interaction and related indicators for monitoring assessment.

The knowledge flow across the Living Labs – which will be ruled according to the guidelines outlined in Chapter 4 - will be monitored through a set of indicators that will follow the dynamics of the co-creation of innovation (exploration, experimentation, evaluation). The LL activities will be carried out across one LL workshop per year in each LL case study landscape.

Table 1: RestPoll Living Labs Innovation stages, Communicative interaction and related indicators for monitoring assessment.

LIVING LAB PHASES AND COMMUNICATIVE INTERACTIONS	INNOVATION STAGES	Monitoring measurement indicators
EXPLORATION (Current state) ***1st Workshop*** **LEARNING PROCESS** (*Knowledge, actions, relations*)	**EXPLORE**	**AWARENESS** *Participants are exposed to information* - Indicator ... - Indicator ... - Indicator ... **KNOWLEDGE** *Participants acquire the information (literacy level)* - Indicator ... - Indicator ...
EXPERIMENTATION ('future state') ***2nd Workshop*** **LEARNING OUTCOMES** (*Knowledge, actions, relations*)	**CREATE** - **IMPLEMENT**	**ADOPTION** *Participants put in place actions related to the knowledge acquired* - Indicator ... - Indicator...
EVALUATION ('current' VS 'future state',) ***Last workshop*** **LEARNING IMPACTS** (*Innovation process*)	**EVALUATE**	**IMPACT** *Impact of the knowledge applied on participants through actions* - Indicator - Indicator...

The indicators that will inform the knowledge flow and the social learning dynamics will be identified according to an adapted social-ecological systems framework (Ostrom, 2009). The indicators will be organised into the following sets of variables:

- Resource systems (Case study areas)
  (i.e., Size, location, facilities, location, ecosystem history, system boundaries, etc.)
- Resource units (Pollinators)
  (i.e., mobility of pollinators, growth or replacement rate, interaction among pollinators, value of pollinators, distinctive characteristics, spatial and temporal distribution)
- Governance systems (Pollinator governance system)
  (i.e., government organization, nongovernment organization, network structure, property rights system, operational choice rules, monitoring and sanctioning rules)
- Users (land owners and managers, farmers)
  (i.e., number of actors, socioeconomic attributes, leadership/entrepreneurship, norms, social capital, technologies used)
- Interactions (Pollinator restoration interactions)
  (i.e., harvesting levels, information sharing, deliberation process, conflicts, investment activities, lobbying activities, etc.)
- Outcomes (Pollinator restoration outcomes)
  (i.e., socioeconomic performance measures, ecological performance measures, externalities to other Social-Ecological Systems **(**SESs).

In the months leading up to the inaugural Living Lab (LL) workshop, the selection of final indicators for monitoring will be a paramount focus. A dedicated **steering group**, comprising of RestPoll participants ranging from socio-economists to ecologists, will be convened for this purpose. This interdisciplinary group will play a pivotal role in deliberating and selecting the most pertinent indicators essential for effective monitoring of the LL's dynamics and outcomes. By drawing upon the collective expertise and insights of diverse stakeholders, including those deeply versed in social and ecological sciences, the **steering group** aims to ensure a comprehensive selection process that reflects the multifaceted nature of the LL initiative. Through collaborative discussions and informed decision-making, the steering group will pave the way for robust monitoring mechanisms that align with the goals of fostering innovation and sustainable development within the Living Labs. To accomplish this, the steering committee will engage with all LL leaders and potentially local stakeholders to pre-identify indicators based on the

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purpose of their work and according to the specific needs and requirements of their LL. The pre-selection of these indicators will be discussed with the **steering group** and validated during the first LL workshop to be used as monitoring measurement indicators. Moreover, the selection of all indicators by the different LLs will serve as proxies for developing more generalized indicators (downscaled variables) for monitoring among the different LLs, facilitating the overall monitoring of the project and comparison among the different LLs.

3. Setting up and running the RestPoll LLs

This chapter covers the processes involved in setting up and operating RestPoll LLs. It includes strategic frameworks and practical considerations necessary for successful implementation and sustained functionality.

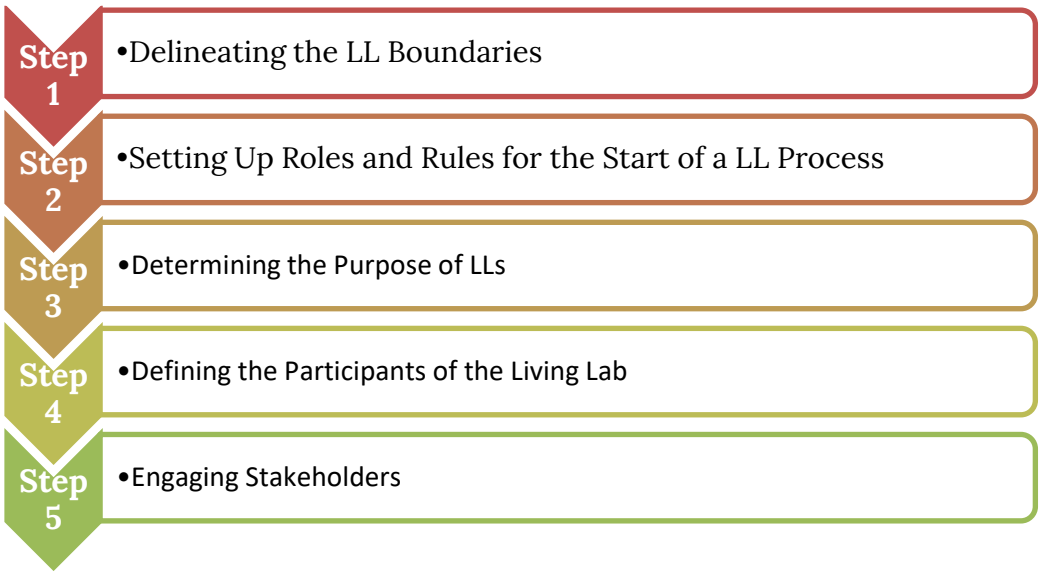

Figure 5: Setting up RestPoll LLs

3.1 Delineating the LL boundaries (Step 1)

3.1.1 Social delineation

The social delineation of the LL is dependent on the social or/and administrative delineation of the farming system and connected food system under study. The social delineation of the farming system is defined as the farmers and all other local actors (local NGOs, veterinarian, local market manager, cooperatives, etc.) that have a mutual influence on one another in a homogenous natural context. Food system and value chain actors that directly influence the farming system (e.g. regional policy makers, regional/national food processors) are preferably also included in the LL process. Food system and value chain actors that only indirectly influence the farming system (e.g. consumers outside, national financial institutes) are not included in the LL process, but

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may be consulted to shed light on the pollination restoration combinations that are tested in the LL and join annual meetings if relevant.

The social delineation of the LL should be started by LL-leaders and LL-facilitators organizing a LL representative board (section 4.2). Throughout the project, LL-leaders, LL-facilitators, and the LL representative board can evaluate the need of including new actors, when deemed necessary from an economic, social or environmental point of view (e.g. environmental NGOs, marginalized stakeholder groups). In addition, to prevent a "continued status quo", they also need to involve actors with creative thinking skills and a relatively neutral stake in the LL (Enfors-Kautsky et al., 2018; Paas et al., 2021a), e.g. local consumers, the local market user, or retired persons.

3.1.2 Geographical delineation

For practical reasons, the LL cannot always cover the entire geographical area of the system under study. It would, for instance, be very challenging to involve a representative group of farmers/land managers or stakeholders that are spread over a large area. The geographical delineation of RestPoll LL will thus often be at the communal level (this may include different administrative delineation within the different LLs, such as municipality, canton, etc.). In some cases, a set of communes may be selected. The selected commune(s) should be, as much as possible, homogenous in natural and socio-economic context and be representative for the opportunities and constraints of the larger system under study. During the farm characterization, a workshop will confirm the (relative) homogeneity and representativeness of the selected commune(s).

3.2 Setting Up Roles and Rules for the Start of a LL Process (Step 2)

Every LL should address the following three roles for a better organization:

3.2.1 LLs Scientific Coordinator:

The LLs Scientific Coordinator is the contact person for the RestPoll partners in each LL. Each Local LL should appoint a Scientific Coordinator from a national scientific institution (Scientific Partner). The Scientific Coordinator and their research group are responsible for ensuring scientific excellence and stakeholder representativeness within the LL activities. The scientific coordinator facilitates collaboration among stakeholders like researchers, industry experts, and citizens within the Living Lab ecosystem.

3.2.2 LL facilitator:

LL facilitators play a crucial role in empowering pollination restoration actors by providing them with innovative data and reusable tools (derived from the different tasks of the project) to lead public action in their areas.

The ideal candidate should have demonstrated practical expertise in crafting local policies or actively participating in ground-level decision-making.

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The person would be responsible for overseeing and executing LLs activities on-site, including organizing and designing critical processes, timelines, and activities to advance the LL.

The primary focus of the facilitator:

Design strategies to enhance collaboration and inclusivity among diverse stakeholders by expanding and fortifying existing platforms aligned with the principles of the quintuple helix (see Fig.2). Responsibilities include fostering the active involvement of civil society organizations, governmental bodies, industries, academia, and environmental stakeholders.

LL facilitators play a crucial role in ensuring robust engagement from civil society, government, industry, academia, and environmental sectors according to the quintuple helix.

LL facilitators should strive to enrich LLs initiatives with varied perspectives and expertise by effectively incorporating feedback and insights from stakeholders into LL activities and plans. Their goal is to drive meaningful progress in LLs areas.

To achieve this, LL facilitators create an inclusive and dynamic environment conducive to positive change and innovation in rural communities.

- *Key considerations (related to the scientific cordinator and the facilitator)*:
  - Scientific partners, in collaboration with their local networks, will select a facilitator to manage and implement LL activities on the ground.
  - Facilitators may be chosen from:
    - the scientific partner research group (the Scientific Coordinator and facilitator may be the same person),
    - local networks involved in the LL,
    - or externally contracted individuals.
  - The RestPoll project will regularly communicate with LL facilitators to ensure effective organization and preparation for all project activities. RestPoll will request a contact person from each LL to facilitate communication. This person may be the LL facilitator/ Scientific Coordinator or someone who is familiar with the situation of the LLs and can easily have the role of the mediator between LL and RestPoll consortium.
  - If the facilitator is not from a scientific institution, they will receive support from the scientific partner within the same country/LL to address any challenges encountered.

3.2.3 Organizing a LL Representative Board

In the setup period, Living Lab leaders should construct a LL representative board. The LL representative board is needed to build the foundation for intentional change (Enfors-Kautsky et al., 2021) in RestPoll action-oriented research. A considerable amount of time

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and effort is required to build a representative board to ensure that transformative change can take place (Enfors-Kautsky et al., 2021).

The representative board consists of 5-8 people who represent the diversity of stakeholder groups in the LL (the proposed number is just a recommendation and the size of the board can be smaller or bigger according to the needs of each LL). Stakeholder groups need to be identified by the LL facilitator and/or scientific coordinator. Stakeholder groups could be visited individually to confirm the list with identified groups. Representativeness will be primarily guaranteed by a stakeholders' willingness and communicative skills to represent their stakeholder group. No elected representativeness is foreseen in the course of RestPoll, but the option will stay available in case the self-organization of LL-actors takes shape into that direction. Farmers form the central stakeholder group and ideally take a leading role, e.g. by being involved in organizing stakeholder activities. Other important stakeholder groups, such as the private sector, NGOs, and government organizations, are also present in the representative board, but they are encouraged to take an advisory rather than a leading role. For instance, they could participate in discussions in an advisory role where the primary input comes from farmers. Another option is to invite them at a later stage of the process (see e.g. Chambers et al., 2022). At the same time, it is of particular importance that the LL respects the existing discretionary power of local representative decision makers (Ribot, 2004).

LL representative board members will be selected based on their governance level, knowledge, connections and influence/power regarding decision making in the LL-territory and connected value chains. They need good facilitation and communication skills and are willing to represent and mobilize their stakeholder group for LL-activities. This will improve chances for developing self-organization in the LL. Also, creativity and being open to change and multiple viewpoints are required. Lastly, LL representative board members should be able to deal with complexity, uncertainty and sometimes less organized conditions regarding the food system under study, while keeping an eye on the bigger picture. It might be hard to find all these skills and attitudes in one person, but the LL representative board as a whole should have these skills (Enfors-Kautsky et al., 2021).

The representative board members are expected to be able and willing to assess processes at the Living Lab level and beyond, i.e. at the communal level and the wider food system level. For that reason, capacity building for systems thinking and reflective practices is key (Enfors-Kautsky et al., 2021). This receives attention in preparation for the Living Lab Launch. The capacity building exercises will be revisited throughout the project duration. System thinking exercises are relatively difficult to moderate, so the representative board should not be too large. Leaving system-centric approaches at LL-level primarily to the representative board, other stakeholders can be encouraged to system thinking related to the level at which they operate, e.g. discussing model results at farm level with farmers.

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From a practical point of view, LL representative board members can be useful in mobilizing other stakeholders for expert interviews and stakeholder workshops. This would greatly facilitate the task of LL leaders and ensure sufficient participants and good data quality. LL representative board members could also (self-)organize additional meetings and come up with methods that help establish a decision-making process, e.g. based on consensus or a voting system.

To ensure commitment and a durable setting for collaboration, LL representative board members should arrive at a common understanding of Living Lab principles for good practice. These principles relate to the aims and values of the Living Lab, e.g. agreeing on and willing to make a change, to be inclusive, and to be transparent. This is a challenging task and is the start of a negotiation process, in which the different stakes of stakeholder groups need to be discussed. The Living Lab principles can also relate to practical engagement, e.g. to represent stakeholder group stakes, mobilize participants when necessary, or to find/propose a replacement in case continued engagement is not an option anymore. Examples of good conduct will be provided. Each LL-leader will prepare their own principles for good practices and discuss these with LL representative board members during the preparation for the LL launch. The final selection of good practices should be shared in written form after an agreement has been reached, but there is no need to sign it.

3.3 Determining the Purpose of LLs (Step 3)

At the outset, it is crucial to address the fundamental question for a Living Lab (LL): "Why is the Living Lab being established?" Regardless of whether the LL is initiated before or during the life cycle of a project, it is imperative to articulate a vision statement that succinctly captures the essence of the purpose of the LL. This vision statement serves as a guiding beacon that unites all stakeholders, including facilitators, partners, and other interested parties, towards a unified goal.

By setting a clear vision, LL provides a precise sense of purpose and enables team members to understand the rationale behind their actions. Ultimately, this clarity facilitates alignment with the broader vision of the project and ensures that activities within the LL contribute meaningfully to the overarching goals of the RestPoll project.

By summarizing LL value proposition, the vision statement motivates collective action and encourages the exchange of ideas among participants. It explains how the pursuit of the common goal can mutually benefit individual goals and thus inspire participation and collaboration among stakeholders.

3.4 Defining the Participants of the Living Lab (Step 4)

A key characteristic of Living Labs (LLs) is their inclusive approach to stakeholder engagement. In the RestPoll context, it is essential to broaden the scope beyond researchers, facilitators, agronomists, environmentalists, or businesses. Stakeholder engagement should be tailored to the specific objectives and focus questions of each LL,

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encompassing a wide range of actors such as consumers, citizens, local institutions, and representatives from the tourism sector.

This comprehensive engagement enables LLs to capture the nuances and diverse trajectories of rural transformation. By engaging with a wide range of stakeholders, including those outside traditional agricultural areas (e.g. natural parks), RestPoll can effectively address the multifaceted challenges and opportunities inherent in pollination services.

- **To address the specific objectives and focus questions of the LLs we suggest the following:**

1) *Collaborate with the national scientific coordinator to identify the key thematic areas that LL should prioritize for the collection and integration of new data (according to the needs of the different project tasks).*

You can do this either independently, drawing on past experiences and knowledge in the specific LL context, or by organizing one or more kick-off meetings, face-to-face or online, with a select group of relevant stakeholders already involved in LL networks.

2) *Clearly define the relevance of these thematic areas to ongoing local development strategies and policy-making processes using understandable language. Also, articulate how RestPoll can contribute to supporting these efforts.*

LL's WHY statements should be concise, optimistic, actionable, and expressed positively.

3) *Consider the composition of the LL in terms of stakeholders (stakeholder identification).*

In this stage, it is important to assess the stakeholder networks associated with existing local platforms, which serve as the foundational nodes of the LL. Additionally, consider the diverse and complementary roles within these networks, including policymakers, representatives from the private sector, associations, and others.

Discussions of stakeholder identification can be organized—with the assistance of the Scientific Coordinator—both internally within the LL and externally with representatives from outside the LL. For instance, these discussions might start with identifying any missing stakeholders. Reviewing lists or maps, questions like "Who is absent?" or "Who needs to be included?" are pivotal.

To prepare for co-creating the LL profile (which will subsequently aid in structuring the LLs), a stakeholder map can serve as a valuable starting point. A stakeholder map offers a visual depiction of all the actors who may influence project implementation at the local level, as well as illustrating their interconnections. Please see Appendix D

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for the Stakeholder map exercise. In addition to this, also you can also use the kind of tables as shown below (Fig. 6).

Stakeholder(s)	e.g. Research Institutions	e.g. Institutional Authorities	e.g. Agricultural producer associations	.....add columns if needed (for adding stakeholder categories)
Active core	1)..... 2).....	1)..... 2).....	1)..... 2).....	1)..... 2)..... .....
More peripheral actors	1)..... 2).....	1)..... 2).....	1)..... 2).....	1)..... 2)..... .....
Other actors that should be involved	1)..... 2).....	1)..... 2).....	1)..... 2).....	1)..... 2)..... .....

Figure 6: Stakeholder identification table.

Guidelines for Stakeholder Identification:

- Adopt a comprehensive approach to identifying actors and stakeholders that takes into account both transdisciplinary research and multi-actor/multi-level action. This inclusive method can open up new possibilities for individuals who currently play distant, disconnected, or cross-functional roles.

- Think about the integration and consideration of social differences, such as gender, educational background, and occupation at the start and later stages of a collaborative project. These considerations are vital for fostering an inclusive equitable, gender-diverse environment within the project.

4) *Initiate contact with representatives and key stakeholders from various stakeholder networks relevant to the Living Labs (LLs).*

Reach out to them using concise and straightforward "WHY" statements to communicate the significance of the project in advancing pollination restoration strategies and policy-making processes within your LL area settings, and the value of active participation in the project based on their area of expertise, interest, or sphere of action.

There are a few examples of 'WHY" statements:

- To inspire others through creative expression.
- To make a positive impact in my community through service.
- To continually learn and grow, sharing my knowledge with others.
- To create a loving and supportive environment for my family.
- To promote equality and justice, working tirelessly towards a more just society.

5) *Establish initial internal communication channels with a core group of stakeholders representing the networks supporting Living Labs (LLs).*

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Use email (and perhaps another application common in your country, e.g. WhatsApp) lists to schedule meetings and create a platform to share ideas and discuss relevant topics. For example, set up a forum to facilitate online brainstorming sessions for LL ideas. You can use these channels to announce the launch of the RestPoll LLs, briefly communicate their objectives, and encourage interested individuals to actively participate in the LL. And you can enlarge these communication apps for different needs.

3.5 Engaging stakeholders (Step 5)

One of the key challenges in initiating Living Lab (LL) activation and future stakeholder engagement is how to effectively involve people. To address this, we offer a series of recommendations to assist facilitators in reaching out to potential stakeholders and recruiting participants for initial community engagement activities.

Identify Opinion Leaders or Influencers: It may be useful for LLs to identify opinion leaders or influencers in their communities to help spread the word about events or consultations. These individuals can also be instrumental in communicating the launch of RestPoll to specific local target groups. Potential opinion leaders or influencers may include local politicians, businesses, artists, or prominent community figures. It is therefore advantageous to share information with them in an easily shareable format, such as an email template, Twitter post, or image.

Map Local Events, Initiatives, and Connections: Identify and connect with existing initiatives and projects where collaboration can be developed. Utilize a variety of communication tools, including local newspapers, city/provincial or local university newsletters, and social media platforms such as Facebook, Twitter, LinkedIn, and various online forums. Consider creating a unique hashtag not only for your Living Lab but especially for events to increase visibility and engagement

Engagement tools

To keep the group and/or potential stakeholders active and engaged, we recommend the use of polls and quizzes to break the ice and animate meetings and the group in general. Maintaining a long-lasting level of communication and interaction is essential for the strengthening of trust between the various actors, for ensuring the proper involvement of all in the activities, and for outlining the vision of the Living Lab.

Below we reported some examples (several online workshops will be organized by CIHEAM-IAMM, during April and May 2024, to train LL leaders on these tools):

Mentimeter
What is it?
It is an Audience Engagement Platform designed to support users with creating interactive meetings and presentations.
Main characteristics
The presence of some options depends on the paid or free version. The tool allows you to share quizzes and customize presentations. The software includes:

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• live quizzes • word clouds • live polls • Q&As • remote face-to-face • hybrid presenting • analytics • translation with various languages

Slido
What is it?
It is an easy-to-use Q&A and polling platform.
Main characteristics
Slido depending on the paid or free version allows you to share quizzes and customize presentations. The software includes: • live polls • Q&As • live quizzes • analytics • chance to add Slido into presentation or video conferencing tool • offers more than 30 languages

4. Guidelines

4.1 Guidelines for Stakeholder Interactions

4.1.1 Transparency

It is important to be clear about the goal of bringing about change through the implementation of new, innovative practices. In communicating with LL representatives, this starts with the invitation letter and can be reiterated when discussing good practices in Living Labs. LL moderators/facilitators should always be prepared to reiterate this when the opportunity arises.

4.1.2 Working with human subjects: informed consent, etc.

When working with human subjects, it is important to consider ethical aspects as well as aspects related to gender equality and diversity, as outlined in the RestPoll Gender equality and diversity plan (M25). Two key considerations are obtaining informed consent from participants and managing data in a manner complicit with data protection laws (including the EU's General Data Protection Regulation – aka GDPR, https://gdpr.eu/what-is-gdpr/).

For tasks where a single protocol is required across all LLs that partners will translate and disseminate, only the institution that is leading the analysis should produce the consent form and seek ethical approval.

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Informed consent means that participants voluntarily provide information after being informed about the project objectives and how their personal information will be used. As such, the researcher should provide information on:

1) The purpose of the data collection, including whether it will be used for publications. This just needs to be a simple overview of the specific study you are using this data for.
2) Who will have access to this data. This should include at least one named individual who is the data controller but can otherwise be as simple as stating "project partners at institutions x, y and z".
3) What they can do if they wish to withdraw their data. Where participants are known, then this can be as simple as stating that they can e-mail the data controller. If data is not associated with a particular person, then you can ask them to e.g. provide a unique reference number such as the longform date and time.
4) Where the data will be stored (e.g. on a password protected personal laptop and associated one drive) and destroyed. It is important to include a statement that anonymized data may be published to open repositories alongside published outcomes – this is increasingly demanded by research journals.

Once outlined, consent can be expressed either through signed consent forms (best for in-person or online workshops) or by a statement along the lines of "by continuing, you are acknowledging that you agree to these terms". The researcher must ensure that data collection, processing, and storage adhere to the RestPoll Gender Equality and Diversity Plan as well as standards outlined in the informed consent form, including the promise of pseudonymization/anonymization. Pseudonymous data collection does not involve asking people explicit questions about their identity (i.e. not asking for name, address, phone number, e-mail, or anything else directly connected to that individual), but where a person can either identify themselves (e.g. if there are any questions in a survey with an open answer) or their identity can be inferred without a lot of effort (e.g. there is a single large land owner in a relatively small area). Data are anonymized when such details are removed so that identifying an individual is not possible without very significant effort – for example, turning open survey answers into categories or removing certain data.

Additionally, data collectors must be properly trained on these standards (in this task the **steering group** will be responsible for the training). It is important to note that proper data management extends beyond the requirements outlined in the informed consent form. Researchers and data collectors in the RestPoll project will gather only useful data, ensuring voluntary participation of human subjects with maximal representativeness and inclusivity. They will also respect pseudonymity/anonymity and ensure secure transfer of the data.

Note that when working with human subjects, authorization from national organizations or the involved research institute may also be required.

4.1.3 Facilitation of Living Lab dialogues and decision-making process

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At the start of the Living Labs process, stakeholders may not initially agree on common goals due to tensions and power dynamics that hinder the transition towards sustainability. For instance, some actors may prioritize their own agendas over the participatory process (Mosse, 1994). However, the LL process aims to address this issue through ongoing dialogues and trust-building. Successful stakeholder engagement requires trust building, capacity building, and social learning, which can be facilitated through skillful moderation and adaptation of methods to specific situations. Power dynamics (who is able to influence who – e.g. retailers who set prices and standards for farmers) and issue framing should be taken into account when determining the type of facilitation and moderation needed for stakeholder dialogues. LL leaders should be aware of these factors and adapt their methods accordingly during LL activities. The LL leader and facilitator should conduct an assessment for each LL to determine the appropriate management of the transition toward sustainability. LL-specific adaptations of tools and methodological approaches may be necessary depending on the chosen moderation method (Harvey et al., 2013).

4.1.4 Get involved as a researcher

During transdisciplinary research, researchers must balance the demands of science and society with their personal needs (Sellberg et al., 2021). Researchers bring their own worldview to the project and expose themselves to real-life problems that may exceed their individual and societal capacity to solve. This can create tensions between the objective observations demanded by science and the demand for change from society, which can drain their mental energy and commitment to the project. Researchers should create a safe space for the exchange of ideas and perspectives, to ensure that RestPoll partners and LL-actors remain academically sound, socially responsible, and mentally healthy. It is important to be aware of these tensions. Researchers should create a safe space for the exchange of ideas and perspectives, to ensure that RestPoll partners and LL-actors remain academically sound, socially responsible, and mentally healthy. Towards that direction, the **steering group** will facilitate these discussions.

4.2 Guidelines for Designing and Structuring Meetings in Living Labs

When organizing a meeting within a Living Lab (LL), the management process can be divided into three distinct phases: before, during, and after the meeting. It is crucial to ensure that each phase serves a clearly defined purpose and targets specific participant groups whose involvement is desired in the discussion. Additionally, the facilitator should possess a comprehensive understanding of the expertise levels of the involved actors, enabling the selection of appropriate tools and methodologies accessible to all participants.

***The Meeting Management Process*:**

To ensure effective management of your meeting, it's beneficial to organize it into three distinct phases: before, during, and after.

- **Before the Meeting:**
- Define the purpose of the meeting, its format, the presenters, the timing, and the necessary tools (online or not).

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- Collaborate with other speakers or RestPoll partners (**steering group**) to prepare a draft agenda, identifying the program and content.
- Inform your target audience by sending invitations together with the preliminary draft agenda.
- Optionally, assign roles to a support team, such as presenters, note-taking moderators, technical assistants and chat/Q&A moderators (for online events).
- Make sure you are familiar with the participants, their roles within their organizations and why they are interested in participating.

- **During the meeting:**
- Remind participants to follow basic interaction instructions, such as muting microphones or phones, indicating question time availability, and indicating intervention options (e.g. virtual hand raising, chat).
- Introduce the team and presenters, outline the program and introduce each speaker and session.
- Use ice-breaker questions to increase interaction and participation.
- Engage participants and initiate activities, using ice-breaker questions if necessary to encourage interaction.
- Encourage open expression and exchange of ideas by actively listening for verbal and non-verbal cues.
- Be open-minded, positive, and responsive, seeking to understand different points of view and encouraging constructive feedback.
- Summarize the topics covered and conclude the discussions for each session.
- At the final stage of the meeting, announce that the discussions are complete, over.

Tips:

While you can ask general icebreaker questions, there may also be icebreaker questions related to RestPoll. Here are some examples of icebreaker questions for RestPoll-related LLs:

- What is your favorite pollinator and why?
- What is your favorite pollinated crop?
- How do you think pollination services affect your daily life?
- What is the most innovative solution or project you have seen or heard about to protect or improve pollination services?
- If you could be a pollinator for a day, what would you do and where would you go?
- What are some challenges or opportunities you face or foresee in your context or field related to pollination services?
- How do you measure or assess the impact or value of pollination services in your business or activity?
- What are some best practices or recommendations about pollination services that you would like to share or learn from?
- How do you communicate or collaborate with other stakeholders or actors involved in pollination services?
- What are some of the questions or topics that you are curious or passionate about regarding pollination services?

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- **Post Meeting:**
- Send a follow-up email to inform of specific key points covered/discussed in the meeting and share the presentations or other documents and the recording (if it is necessary).
- Follow up with individuals about tangents and other information they offered that you were not able to discuss in the meeting because it was off-topic or time ran out. This will help them feel listened to.
- Forward RestPoll materials and some personal reflections from any major meetings you attend such as the AGM. This helps them feel like they are part of the project.

***Tips For Facilitating Meaningful Discussions*:**

To encourage active participation and ensure an equal exchange of ideas, perspectives, and engagement from all participants, consider the following elements:

- **Make ideas tangible:** Increase clarity by explaining concepts with examples, photographs or graphical representations.
- **Encourage equal participation:** Avoid allowing any one individual to dominate the discussion and ensure that everyone has the opportunity to contribute. For example, if one individual is always the first to speak when you ask an open question, identify who has an immediately relevant perspective and ask them first.
- **Explore interests rather than positions:** Focus on uncovering underlying interests rather than entrenched positions to facilitate finding common ground.
- **Address issues, not people:** Maintain focus on objective issues rather than personalizing challenges.
- **Embrace discomfort:** Recognize that important discoveries and transformative learning take place when participants step out of their comfort zones.
- **Address difficult issues:** Encourage discussion of sensitive or challenging issues following the discovery of discomfort.
- **Prioritise progress over perfection:** Emphasize that moving the conversation forward is paramount and that solutions often emerge through ongoing dialogue.
- **Use probes and clarifying questions:** Encourage participants to elaborate on their thoughts and experiences by asking open-ended questions such as "Can you tell me more about this?" or "What happened next?".
- **Use cues and gestures:** Use cues such as eye contact and words of encouragement to solicit deeper participation from participants.
- **Use a structured list of topics:** Provide a framework for discussion by outlining key topics and subtopics to guide the flow of the conversation.
- **Do not try to facilitate and make notes at the same time:** Participants should know they have your (or the facilitators) full attention. Recording conversations is highly recommended but for the best results, ask a colleague to participate in note taking. Students working on related projects are ideal for this as it allows them to get experience of different perspectives.
- **Only interrupt if you have to**: Some people will talk more than others but often people will want to talk a lot to feel heard. Only interrupt if they are going in circles or going on tangents.

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Participant Feedback Collection Directions:

To ensure a thorough evaluation of your Living Lab activities and to improve future events, it is crucial to plan a structured feedback collection process. This allows participants to provide insight into aspects of organization, facilitation, and engagement. Incorporating participant feedback helps to effectively monitor and evaluate your Living Lab initiatives.

Feedback can be collected in a variety of ways, including the following:

- Finalizing the feedback session: Allow time at the end of the event for participants to share their thoughts and suggestions.
- Post-event email: Send a follow-up email with meeting minutes and a request for feedback.
- Use online survey platforms: Use platforms such as Google Forms, SurveyMonkey, EU Survey or Microsoft Forms to collect structured feedback electronically.

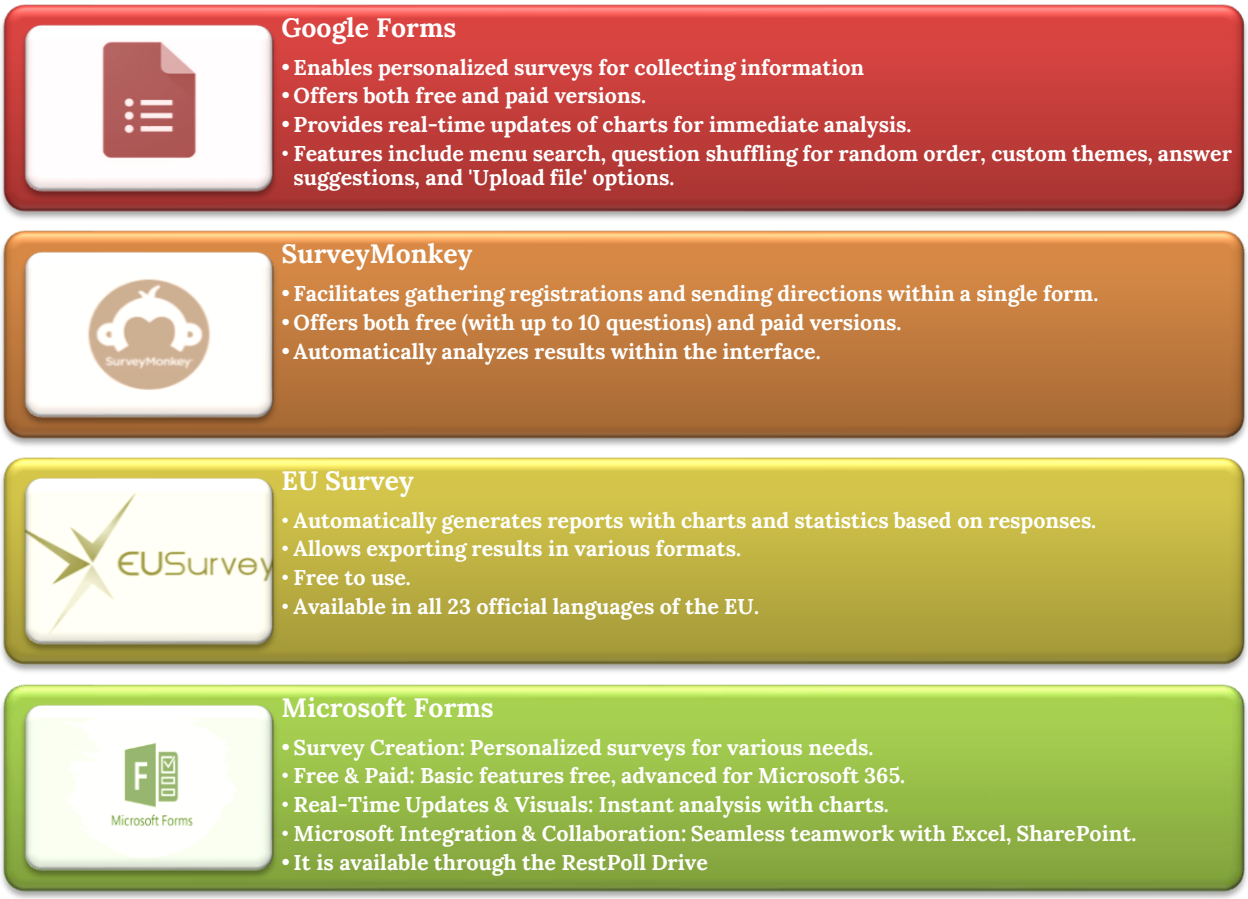

Figure 7: Online survey platforms.

For each official event, you must complete your "**Monitoring and evaluation tool**" and you should share it on the RestPoll cloud. **Table 2** contains examples of questions you can include in your feedback collection process.

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Table 2: Part of the monitoring tool.

Feedback Elements		
Workshop Details:	-Title of Event: -Date of Event: -Location of Event: - Number and characteristics (stakeholder groups, age, gender) of participants	
Organization of the Workshop:	How was the workshop's organization (including logistics, venue, etc.) rated by the participants?	Please use a rating scale from 1 to 4 in the feedback form, where 4 indicates the highest level of satisfaction. Include the average of responses.
Facilitation and Engagement:	How was the workshop's engagement (including quality of facilitation, proposed dynamics, participation opportunities, networking, etc.) rated by the participants?	Please use a rating scale from 1 to 4 in the feedback form, where 4 indicates the highest level of satisfaction. Include the average of responses.
Content Quality:	How was the quality and usefulness of the content/presentations rated by the participants?	Please use a rating scale from 1 to 4 in the feedback form, where 4 indicates the highest level of satisfaction. Include the average of responses.
Discussion Quality:	How was the quality of the discussions rated by the participants?	Please use a rating scale from 1 to 4 in the feedback form, where 4 indicates the highest level of satisfaction. Include the average of responses.
Expectations from Participation:	What do you want/expect from participation in this Living Lab (LL) activity?	This can be inquired during interactions with LL members. It can also be addressed during the event in a specific session or through a pre- or post-event form.

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Creating the Action Plan:

The Action Plan serves as a roadmap outlining the steps necessary to achieve the objectives of all Living Labs activities. Its structure should be aligned with RestPoll's future activities and dates. What are the key elements necessary to ensure the feasibility of future actions?

- ***What*:**
- Define the priority (issue) that needs to be addressed.

- ***Why*:**
- Explain why your priority is necessary for the region (purpose).

- ***Who*:**
- Identify the different actors involved in the realization of each priority. Identify the actors employed or enabled for the action, including their commitment, objectives and distinctions between direct beneficiaries and other stakeholders.

- ***How*:**
- Outline the planned activities, indicating the tools and facilitation methods. Explain how you will evaluate the success of these activities (method).

- ***When*:**
- Define the main phases for the second year of the activity. Take into account community activities, avoid overlaps, and holidays, and prioritize weekdays over weekends (sequence).

- ***Where*:**
- Identify locations where the action will take place, whether specific rooms within the venue, online platforms, or external venues. Choose a neutral location that is conducive to promoting the event (location) (stakeholder; accessibility to the venue should also be considered or find transportation solutions).

- ***Risk Management*:**
- Anticipate potential risks related to your implementation strategy. Analyze their impact on the expected results and create a list of possible solutions to effectively mitigate the risks.

By addressing these elements, the Action Plan can be systematically structured to ensure the successful implementation of Living Labs activities.

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4.3 Guiding Principles for Annual RestPoll LL Workshops

This section outlines the fundamental principles that govern the annual workshops conducted within the RestPoll Living Labs (LL). These guidelines serve as a framework for facilitating meaningful discussions and fostering collaborative efforts among LL participants and towards achieving the objectives of the RestPoll project.

Regardless of the participatory methodology adopted (e.g., focus group discussion, world-café, etc.; more details in 4.4) the RestPoll LL annual workshops will be ruled according to the following general guidelines:

- In each annual workshop, LL leaders will summarize and show LL participants the main findings from the different tasks of RestPoll. This means that at least 1 month before the workshop for each task concerned (please check Appendix B) the responsible person of the LLs will produce a short technical brief (one or two pages maximum) to explain the achievement of each task.

- Before the workshop, the information coming from these findings (the list of tasks) – and so from the technical fiches - will be organized in a simple and effective way in order to be delivered to LL participants during the workshop (or even before if possible). In any case, an explanatory introduction of these findings will be done by LL leader at the beginning of the annual workshop.

- According to the choice of LL leaders for the participatory methodology that will be applied (e.g., world café, focus group discussion, scenario workshops, etc.), during the workshop the findings of each task will be discussed and, in light of these findings, the following outcomes are expected from the annual workshop:

  - What is/are the desired innovation(s) in terms of pollinator restoration approaches/practices/measures/policies in 10 years in the LL area?

  - What are the main barriers and key opportunities to take into account in order to achieve the desired innovation(s)?

  - What are the actions that should be put in place in order to achieve the desired innovation(s), when and by whom (what stakeholder)?

  - How are the findings from each task of the project contributing to the achievement of the desired innovation(s)?

  - How do LL participants suggest to enhance the findings obtained from those tasks?

  - How can LL participants contribute to enhance the findings obtained from those tasks according to their role as specific stakeholders?

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- How do these findings contribute to the activity and goals of the different stakeholders involved in the LL?

4.4 Participatory Methods

Meetings, in presence or online, offer opportunities to create new knowledge and skills, through the exchange of ideas and experiences. In addition, the involvement of more people in problem-solving makes decision-making more appreciated by the participants in this context, as everyone can contribute to the planning of a shared path. In this sense and depending on the outcome and on the phase, there are various tools that can support this participatory process.

Below there are some examples (several online workshops will be organized by CIHEAM-IAMM, during April and May 2024, to train LL leaders on these tools):

Focus Groups
What is it?
The method has originally been designed for market research. Today, is a qualitative method which is used to figure out the preferences of people or to evaluate strategies and concepts. People who participate interact with each other
Who can take part?
Participants are selected according to certain characteristics in common that relate to the research topic and are grouped into 8-10 people (e.g. smaller groups are more suitable for complex topics).
Main characteristics
There are three main characteristics of the focus groups: • Focus on specific topic • Presence of facilitator or moderator that keep the group focused on discussing the specific topic • There is careful planning behind the group's composition and the group's discussion to create an environment in which people feel free to talk openly. Members of the group may need to be encouraged by the facilitator to express their opinions.
What is it generally used for?
The method is used to examine and understand different experiences, perceptions, thoughts and feelings among various participants, with a particular attention devoted to the dynamics between the participants and the mutual alignment and misalignment of views expressed by them.

World Café
What is it?
It is an easy-to-use method for fostering a creative process for collaborative dialogue and the sharing of knowledge and ideas, particularly in large groups. It is, simultaneously, a provocative metaphor enabling us to notice the often-invisible webs of conversation and social learning that lie at the heart of our capacity to share knowledge and shape the future together.
Who can take part?

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World Café method can be adapted to meet a wide variety of needs and people.
Main characteristics
It follows seven core design principles: • Set the Context • Create Hospitable Space • Explore Questions That Matter • Encourage Everyone's Contribution • Cross-Pollinate and Connect Diverse Perspectives • Listen Together for Patterns, Insights, and Deeper Questions • Harvest and Share Collective Discoveries. The work is usually organised around smaller tables of up to five people (with one host) with several rounds of comparatively brief group conversations where non-host participants switch tables for each round. Each table usually addresses a different sub-question of the main question guiding the whole exercise.
What is it generally used for?
It is used for creating results to generate ideas, to enable joint decision-making on key strategic issues, to discover new ways for collaboration, to reflect on the implications of a complex issue and in finding specific step(s) for further exploration and implementation.

Stakeholder working group
What is it?
The method is a workshop that enables focused discussions between distinct groups of stakeholders.
Who can take part?
Stakeholders representing different profiles and groups in relation to the topic in question.
Main characteristics
The method consists of five steps: • Information • Selecting topic • Discussion • Deliberation • Vote Some scenarios may be repeated if multiple research scenarios are to be enriched by each group. Research scenarios are specific situations or contexts that researchers use to explore research questions. Researchers can immerse themselves in a specific context by considering various factors and variables.
What is it generally used for?
It is used for enriched and prioritized research scenarios or alternatively policy options, implementation steps etc.

A Knowledge café
What is it?
It is a conversational process that brings together a group of people to have an open, creative conversation on a topic of mutual interest to surface their collective

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knowledge, share ideas and insights, and gain a deeper understanding of the subject and the issues involved.
Who can take part?
Anyone can run. In the other words anyone, regardless of their background or experience, has the capability to participate in this conversation
Main characteristics
It is simple and flexible.
What is it generally used for?
Knowledge Café purposes are to: • Share knowledge and learn from each other • Connect people and build relationships • Gain a better understanding of a complex issue • Identify risks or unintended consequences associated with a project • Surface hidden problems • Surface opportunities

Scenario workshop
What is it?
It is a tool for participatory planning, based on dialogue and collaboration between a group of various actors.
Who can take part?
The two-day meeting (or one day meeting with an adapted methodology) involves 25-30 local stakeholders
Main characteristics
The method is suited for local and regional problems that need immediate action, it is also for controversial and complex topics to help people create a common vision. The participating citizens are an equal group alongside the other actors. In this case, citizens can be defined as experts because of their local experience and knowledge that is crucial in solving local problems. Usually, three phases are developed during the workshop: • Critical analysis • Vision making • Implementation
What is it generally used for?
To stir dialogue, provide the opportunity for exchanging experience and knowledge about existing barriers and possible solutions, enhance the understanding on the central topic/problem of discussion, and facilitate consensus on proposed solutions among the involved groups. The direct results could be an action plan or recommendations.

4.5 The Guidelines for Policy Making in Living Labs on Pollination Restoration

This section discusses the 'Guidelines for Policy Making in Living Labs on Pollination Restoration,' which is a crucial aspect of the RestPoll project and the subject of Task 4.3, for which more detailed guidance will be provided prior to the second annual LL workshop. Pollination restoration, which underpins the RestPoll project, is a basis for policy making on pollination restoration thanks to LLs that aim to maintain and enhance

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the diversity and abundance of pollinators and habitats essential for food production and ecosystem health. These Guidelines propose some key steps and considerations for applying the living lab approach to this field, such as (following IPBES, EU Special report 15/20):

- Identify the main stakeholders involved in pollination restoration such as farmers, beekeepers, conservationists, researchers, policy makers and citizens and their roles, interests and expectation.

- Co-design and co-implement pollination restoration interventions with stakeholders, such as creating pollinator-friendly habitats, improving floral resources, reducing pesticide use and promoting native pollinator species (EU Special report 15/20).

- Evaluate the impacts and outcomes of pollination restoration interventions across multiple dimensions such as pollinator diversity and abundance, crop yield and quality, ecosystem services, socio-economic benefits and policy learning.

- Communicating and disseminating results and lessons learned from pollination restoration interventions to relevant audiences such as other living laboratories, policy makers, media and the public (Clare and Creed, 2022).

The guide will also highlight some of the benefits and challenges of using the living lab approach for pollination restoration (Clare and Creed, 2022; IPBES):

- Benefits: fostering collaboration and trust among stakeholders, increasing stakeholder empowerment and ownership, generating context-specific and evidence-based solutions, and supporting policy innovation and adaptation.

- Challenges: ensuring stakeholder representation and engagement, balancing different stakeholder interests and perspectives, ensuring adequate resources and financing, and dealing with uncertainty and risks will include topics such as these.

4.6 LL Process Monitoring and Evaluation

RestPoll needs to evaluate the performance of Living Labs to provide recommendations to help replicate the Living Lab process elsewhere. As Living Labs are context and participant-dependent, a flexible approach is needed to monitor and evaluate the performance of RestPoll LL.

However, we also need to be able to compare our findings between different Living Labs. Common themes that can be addressed during monitoring and evaluation relate to, among others, actual changes on the ground, overall stakeholder engagement, inclusion of new actors/stakeholder groups, and self-organization of the Living Lab. For this, we should use the Monitoring and evolving form we have prepared (see Appendix C). These forms should be uploaded to the RestPoll LLs cloud. In this way, 17 different LLs will monitor the development and a broad perspective will be provided for the project. At the same time, each LLs will share their monitoring and evolving information, which will

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enable the LLs to coordinate and support each other. Adaptations will be needed, for example, to incorporate themes related to the longevity of the LL after the end of the project and its capacity to overcome internal differences and tensions. Monitoring and evaluation of the LL process will align with RestPoll LLs multi-scale and multi-dimensional framework based on policing restoration. Mini surveys (e.g. Table 2) will be used to capture perceptions of the success of LLs. To illuminate and validate (to a limited extent) cross-comparison between LLs, issues involving the natural, socio-economic, and institutional context of the LL will be mapped, taking into account their commonalities and differences.

Furthermore, we will implement a document to internally monitor the action plan. This document will provide transparent visibility and evaluation of the actions planned within the Living Labs (LLs), enhancing the effectiveness.

Another valuable tool is the use of online agendas or calendars, which serve as digital logbooks. Each Living Lab (LL) should establish and maintain an LL-specific agenda, which is shared with relevant stakeholders. Google Calendar is a suitable platform for this purpose. By utilizing such an agenda, deviations can be minimized, the process gains transparency, partner awareness is heightened, and LL management can easily monitor progress.

1)Internal monitoring of the Action Plan

2) Mini survey

3) Google Calendar

4) **Evaluating and monitoring the LLs doc (LL composition & setting)**

4.7 The Potential risks and challenges LL may encounter

LLs are interactive, transdisciplinary, collaborative, and social learning-based innovation ecosystems. As such, they may face numerous complex risks and challenges in entirely different contexts that could significantly impact their success, sustainability, and even their very existence. Comprehensive transdisciplinary work, based on real-life conditions in co-creation environments, carries potential risks and challenges. For this reason, these potential risks and challenges can be addressed in many different ways. For analytical clarity, these risks can be grouped into two main categories: (i) internal risks, related to methodological, ethical, operational, and stakeholder interaction issues within the LL; and (ii) external risks, related to political, institutional, or contextual factors such as the history of LL activities in the area. In the following, we delve deeper into these potential risks and challenges.

A first category of risks relates to political and institutional obstacles. Sometimes we may struggle to attract the attention of politicians, and this can weaken the power of LL. We can attribute the fundamental reason for this to the incompatible perspectives of LL and institutional organizations. Generally, while politicians focus on issues that yield visible

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results in the short term, LL issues require medium- and long-term processes. Furthermore, the lack of alignment between politicians' priorities and LL's mission and vision increases the risk encountered. Consequently, there may be risks in terms of finding long-term policy and political support. Problems may be encountered with existing institutional structures, but the key to mitigating this risk is for the LL to demonstrate its added value in the region. This requires balanced communication by LL leaders with both institutional actors and local stakeholders.

A second category of risks relates to stakeholder diversity and potential conflicts of interest. LLs bring together diverse groups—scientific institutions, policymakers, businesses, and civil society—whose economic, political, academic, and community interests may sometimes conflict. These role conflicts must be managed effectively and impartially by LL leaders and facilitators. Effective management means that leaders and responsible individuals prevent or resolve conflicts between individuals or groups objectively and impartially, guided by ethical values. At the same time, it is very crucial to establish a culture of communication between these different groups in LLs. Along with this, the LL leader and responsible persons should analyze conflicts, or potential conflicts, objectively and perform preliminary assessments to guide their actions. Establishing a culture of transparent communication and shared ethical values is critical to preventing these conflicts from undermining the LL process.

Another major risk concerns stakeholder participation and long-term sustainability. Ensuring that stakeholders regularly participate in annual meetings held at least once a year during the project period and maintaining diversity among stakeholders stands out as one of the greatest difficulties. The most effective solution to this challenge is to make the Living Labs (LL) as interesting and valuable as possible for stakeholders by ensuring transparent and clear common interests between the Living Labs and society. People are more willing to participate in environments where they feel valued and their opinions are taken seriously. Therefore, we must approach the process with sensitivity, considering both its emotional and logical dimensions. This situation also brings to light a fundamental fact: stakeholder expectations and project outcomes must always align. In other words, LLs are not only for the scientific outputs of the project, but also for social learning and co-creation environments that meet the expectations and needs of stakeholders. It is essential to keep this in mind at all times. Accordingly, it is necessary to ensure that stakeholders value LLs and give them the opportunity to comfortably establish their own patterns within the framework of LL's vision and mission without feeling pressured. Especially in LL activities carried out in the early years, deviations from the topic may occur, and this situation may create difficulties in achieving the desired outcomes for the project. However, in such cases, it is much better to keep stakeholders engaged rather than pressuring them, allowing them to express themselves freely within ethical frameworks. For example, imagine an LL holding its first-year workshop in the exploration phase. As one might expect, the initial ideas and feelings gained here are critical to the continuity and success of LLs. Under normal circumstances, it is not common for a farmer to meet with a politician or academic in many regions. Therefore,

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at these initial meetings, they will naturally want to bring up topics that are their priorities. This is a very natural process, and the process should be allowed to flow based on the LL vision and mission. Otherwise, this approach may demotivate stakeholders and pose risks to the sustainability of the process.

transdisciplinary is both an asset and a potential challenge. While it enriches LLs, it can also create difficulties in achieving harmony among actors with different disciplinary and professional backgrounds. Achieving harmony among stakeholders with different backgrounds can sometimes be difficult. However, accepting this situation as a natural part of the process and approaching it from a broader perspective can help achieve harmony quickly without creating a major problem.

A further category of risks involves communication and integration challenges. LLs are medium- or long-term environments. Therefore, communication, information transfer, and integration processes must be managed as successfully as possible. One of the most important steps in ensuring this is, as LL leaders, to ensure that stakeholders clearly understand the LL phases (‘exploration – experimentation – evaluation. A clear sense of this cycle among stakeholders increases the continuity of their participation in LL activities. The reason for this is that the evolving phases each year generate both curiosity and a desire to continue participating in the LL among stakeholders.

Ethical issues, particularly those related to privacy, data use, and informed consent, represent another potential risk Adherence to ethical frameworks, transparent data management, and explicit stakeholder consent are essential safeguards for trust-building. Therefore, these issues must always be taken into consideration. We must ensure that we adhere to our ethical framework and that consent forms are signed by stakeholders for every activity conducted. Stakeholder consent and trust are crucial for the LL process. Therefore, under real-life conditions, ensuring the ethical integrity of LL environments and that stakeholders are not subjected to any discrimination is always a priority that requires attention.

Technical and infrastructural limitations also represent potential risks. Limited resources are one of the main reasons for this. In addition, we are running the LL with stakeholders of different age groups, backgrounds, and sociocultural differences. Therefore, even though we live in a technological age, the accessibility and familiarity of stakeholders with technology, as well as problems that may arise from technical breakdowns, must always be taken into account. Therefore, alternatives should always be considered, no stakeholder should feel inadequate or insecure, and no one should be negatively affected by workshops held due to technical malfunctions. To this end, mini-training sessions and reminders (e.g., how to use QR codes, how to fill out online surveys, how to use applications, etc.) should be provided to ensure technology integration. Additionally, LL representative board members and LL responsible persons should have the competence and knowledge to guide other stakeholders and facilitate the process for them. If possible, traditional methods should be available alongside technological approaches (e.g., both

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printed and online versions of the survey). Ensuring accessibility for stakeholders of all ages and backgrounds requires offering parallel traditional methods (e.g., printed surveys alongside digital tools) and providing mini-trainings where needed.

Beyond internal dynamics, LLs may also face external contextual risks depending on whether previous LLs have existed in the area, are still active, or are being newly introduced. For example, whether LL has been established in the area before, whether there is currently an active LL, or whether there has never been an LL in that area before, each carries different potential risks and challenges. The important thing is that, in all cases, the project LL managers, project management, and project partners communicate and support each other to manage these risks together with patience. Because even if an LL in the area appears to be independent, it is usually part of a project network and is not alone. Therefore, ensuring cohesion and increasing communication between LLs within the project is always important and essential for the project's common outcomes and success. Regular LL network meetings are highly valuable in terms of keeping LLs informed about each other's progress, providing new ideas, motivation, and support.

If we examine these situations separately:

First, there may be LLs that previously existed in the region but are currently inactive. This situation can create positive or negative preconceptions in the community, which is a risk. For example, a previous unsuccessful LL initiative may undermine stakeholders' confidence in the new LL. Bad experiences can make it difficult for the new LL to be accepted by the region and can prevent the strengthening of the bond between stakeholders and the LL. It can even prevent the establishment of an LL in the region. However, the opposite of this scenario is also possible, and instead of being a potential risk, it can provide convenience.

One of the most challenging situations within projects involves existing LLs. Here, one may encounter a wide range of potential risks. In such cases, an existing LL prioritizing its own stakeholders and objectives may pose a risk to the implementation of a new LL by considering new activities or issues in the region. In such situations, it may be necessary to consider their priorities and values, share management responsibilities, or leave them entirely to their own devices. This can often create difficulties in terms of project outcomes. Sometimes, the outcome may be the withdrawal of the existing LL and the continuation of work in the region as a prototype LL. The aim here is to gradually draw the partners' attention to the project topic and create the conditions for future LL work on this topic. It is also possible for two projects with similar topics to share the same LL. This situation is generally seen as an opportunity rather than a risk; outputs can be shared, and the LL can generate more data. Perhaps this way, the newly planned management team could include more experienced individuals who can provide guidance, which is also a positive thing. However, the primary priority is to maintain compatibility with the existing LL and attract the attention of stakeholders into the topic.

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Lastly, newly established LLs pose a significant challenge, particularly for the LL responsible team. If the team has not worked with this approach before, they may encounter various difficulties while trying to understand the process. However, once the process is grasped, the flow generally becomes easier. The new approach may create biases among partners and make it difficult to understand the co-creation structure or the LL mindset. It is likely to encounter these problems, especially in regions that are not open to innovation. However, despite the apparent difficulties in this case, there are also advantages.

In conclusion, LLs inevitably face internal and external risks linked to political, social, ethical, technical, and contextual dynamics. The resilience of LLs depends on patience, consistency, transparency, and inclusive leadership. By anticipating these risks and adopting adaptive strategies, LLs can strengthen stakeholder trust, foster long-term engagement, and ensure that co-creation processes remain effective and sustainable. Nevertheless, it should not be forgotten that the LL process yields results in the medium or long term. Studies have shown that LLs complete their learning and development cycles by improving each year, so it should be noted that patience, faith, consistency, openness, and mastery of the process form the cornerstones of this process.

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6. Appendix

Appendix A.

Information for nonexistent LLs

Living Labs are a novel approach to innovation that involves real-life users in co-creation, experimentation, and solution evaluation (Ballon and Schuurman, 2015). The LLs goal is to create a sustainable impact by addressing complex challenges and needs in various contexts (Hagy, et al. ,2016).

Living Labs offer several benefits (Ballon and Schuurman, 2015; Hagy, et al. ,2016; Puerari et al., 2018):

· They allow users to participate in the innovation process and co-create solutions that meet their needs and preferences.

· They encourage collaboration and communication between different stakeholders, such as researchers, innovators, policymakers, and citizens.

· Living Labs enable rapid prototyping and testing of ideas in real-world settings, leading to more effective and efficient solutions.

· They also facilitate the scaling and replication of successful innovations in other contexts.

Living labs present several challenges, including

· The need for high levels of trust, commitment, and flexibility from all participants.

· Uncertainty and complexity can also threaten the quality and validity of the data collected and analyzed.

· Facilitators and coordinators must manage the expectations and feedback of multiple stakeholders, which demands significant time, resources, and skills.

· Each innovation project requires a clear vision, scope, objectives, methods, tools, indicators, and evaluation criteria.

To effectively work with Living Labs, it is important to follow some general recommendations:

· Define clear scopes and objectives for each innovation project that align with the vision and goals of the Living Lab.

· Choose co-creation and experimentation methods and tools that fit the needs and characteristics of the users and the problem space.

· Ensure transparency and accountability throughout the process by documenting all activities, decisions, outcomes, impacts, challenges, and learnings.

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· Involve stakeholders in all phases of the innovation process, incorporating their perspectives and expertise.

· Facilitate discussions among participants to create opportunities for learning and reflection on experiences, feedback, findings, and recommendations.

· Document and disseminate project results and outputs to increase awareness, visibility, and impact of innovations.

Appendix B.
The link of calendar and LLs task boards: B))RestPoll Tasks boards and Calender_final.xlsx

Appendix C.
The link C) 10_ RESTPOLL_LL Monitoring&Evaluation Template_ final.xlsx

Appendix D
The link of the stakeholder maps; D) RestPoll stakeholder maps_final.pptx

Appendix E
Living Labs information: E)Appendix E_ RestPoll LLs informations_final.docx

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