



Deliverable 2.4

Evaluation report of two Living Labs

Date: 28 April 2024



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 869474.

Acknowledgements

This report was produced under the co-finance of the European financial instrument H2020 as the fourth deliverable (D2.4) of Work Package 2 (WP2) of WATER-MINING project (Grant Agreement No 869474) during the implementation of its Task 2.4 entitled “Living Labs in the Netherlands and Spain”.

The WATER-MINING team would like to acknowledge the European H2020 financial instrument for the financial support.

Keywords

▪ Living Labs ▪ Evaluation ▪ Maturity assessment ▪ Self-assessment ▪ Evaluation criteria ▪ Recommendations



The WATER-MINING project has received funding from the European Commission under the Horizon 2020 programme, Grant Agreement No 869474. The opinions expressed in this document reflect only the author’s view and do not reflect the European Commission’s opinions. The European Commission is not responsible for any use that may be made of the information it contains.

Deliverable information

Deliverable 2.4	Evaluation
Related Work Package	WP2
Deliverable lead	ENoLL (European Network of Living Labs)
Author(s)	Koen Vervoort (ENoLL)
Contact	koen.vervoort@enoll.org
Reviewer	Jokin Garatea (GAIA), Andree Woodcock (Coventry University), Berta Roset Perez (UAB)
Grant Agreement Number	869474
Instrument	H2020 (Innovation Action)
Start date	1 st September 2020
Duration	48 months
Type of Delivery	R
Dissemination Level	PU
Date last update	08/04/2024
Website	www.watermining.eu
Name of contributors	Alessandro Argo (Water Europe)

History of changes

Version	Date	Description	Author(s)
0.1	15/12/2023	Table of contents & Scope of the deliverable	Koen Vervoort (ENoLL)
0.2	25/01/2024	Definition of a Living Lab	Koen Vervoort (ENoLL)
0.3	26/01/2024	The three-layered model of a Living Lab/ The six main building blocks and fifteen criteria of a sustainable Living Lab	Koen Vervoort (ENoLL)
0.4	05/02/2024	The evaluation process	Koen Vervoort (ENoLL)
0.5	06/02/2024	Steps & evaluators of the evaluation process	Koen Vervoort (ENoLL)
0.6	10/02/2024	Tools & outcomes of the evaluation process	Koen Vervoort (ENoLL)
0.7	18/03/2024	Evaluation reports Plataforma Solar de Almeria & Floating Farm Living Lab	Koen Vervoort (ENoLL)
0.8	20/03/2024	Comparison Living Labs	Koen Vervoort (ENoLL)
0.9	21/03/2024	Concluding remarks/Executive summary/Introduction	Koen Vervoort (ENoLL)
1.0	21/03/2024	Version ready for review by GAIA, Coventry and UAB	Koen Vervoort (ENoLL)
2.0	30/03/2024	Version after integration first feedback	Koen Vervoort (ENoLL)
2.1	02/04/2024	Integration feedback Andree Woodcock (Coventry University)	Koen Vervoort (ENoLL)
2.2	04/04/2024	Integration feedback UAB	Koen Vervoort (ENoLL)
2.3	08/04/2024	List of tables and figures fixed	Koen Vervoort (ENoLL)
2.4	26/04/2024	Integration feedback Water Europe	Koen Vervoort (ENoLL)
Final	28/04/2024	Language check and adaptation table of content	Koen Vervoort (ENoLL)

Executive Summary

This deliverable is part of the WATER-MINING project and aims to report on the work carried out and results achieved in Work Package 2 "Co-creation through social engagement for societal embedding".

The main goal of this deliverable is to provide a detailed overview about the co-creation, the implementation and the results of the evaluation process developed to assess the maturity of the two WATER-MINING Living Labs, Plataforma Solar de Almeria (Spain) and Floating Farm (The Netherlands)

This deliverable provides a detailed overview of the activities related to the following (sub)tasks:

- **Task 2.4:** *Living Labs in the Netherlands and Spain.*
- **Subtask 2.4.3:** *Evaluation of the case study Living Labs.*

Over the last years ENoLL (European Network of Living Labs) has developed a harmonized evaluation framework to evaluate and certificate all diverse types of Living Labs. This harmonized evaluation framework allows water-oriented Living Labs such as the two Living Labs in the WATER-MINING project to assess their maturity in a uniform way, allowing comparison with other types of Living Labs (e.g. Urban Living Labs, Health Living Labs, etc.) in the future.

Within the WATER-MINING project we took this harmonized evaluation framework as a basis to:

- develop a water specific criterion to contextualize this framework to the water nexus.
- co-design an evaluation process to make sure the assessment of the two WATER-MINING Living Labs was performed in an objective way and that the evaluation method used was aligned with the high-quality standards of the ENoLL network.

As a result, a quantitative self-assessment by the WATER-MINING Living Labs and a qualitative 3-peer blind review by Living Lab expert evaluators was implemented into the contextualized evaluation process.

The evaluation by Living Lab expert evaluators provided detailed feedback, recommendations for growth and suggestions for knowledge exchange for the two WATER-MINING Living Labs.

Looking at the results of the evaluations of Plataforma Solar de Almeria and Floating Farm it becomes clear that the two WATER-MINING Living Labs are very young Living Labs with a limited experience in running Living Lab operations, but that they have already developed a large and extensive ecosystem within their territories.

Therefore, the two WATER-MINING Living Labs have the potential to become a sustainable Living Lab over time. The recommendations made by the Living Lab expert evaluators will help both Living Lab to plan and implement the necessary actions to grow further to become sustainable beyond the scope of the WATER-MINING project.

In order to become a sustainable Living Lab both Living Labs will have to invest in:

- strengthening their operational Living Lab teams to safeguard that at least one person is dedicated full-time dedicated to take care of all the Living Lab projects and activities.

- developing their own Living Lab services for clients to increase the balance of their revenue streams and not being solely dependent on project funding and /or private funding.
- exploring and implementing more advanced and diverse types of participatory tools and methods to interact with users/participants of their Living Lab activities.

Comparing the evaluation reports of Plataforma Solar de Almeria and Floating Form allowed us to identify synergies and difference between the two WATER-MINING Living Labs and to provide following recommendations for knowledge exchange between them:

- **Organizing recurrent catch-up meetings between both Living Labs** will help both Living Labs to learn not only from each other the barriers and drivers in operating the Living Lab, but can also help them to identify Living Lab services used by the other Living Lab.
- **Learning from each others composition of local ecosystems** can help both Living Labs to identify possible gaps in their own ecosystems and allows them to fill these gaps.
- **Exchanging experiences on how to interact with stakeholders** can help both Living Labs to discover and explore other types of participatory tools and methods. Moreover, they could agree on experimenting with the same tools and/or methods to harmonize the outcomes of their activities. This could help them in the identification of possible approaches to be scaled-up to other organizations and/or Living Labs.
- **Informing each other about technological outcomes** can help both Living Labs to replicate technical solutions.
- **Exchanging practices on IP related issues** can help both Living Labs to identify additional ways of dealing with the use, sharing and licensing of data and Intellectual Property rights.

Finally, this deliverable describes the next steps, based on the outcomes of the evaluation reports, to support the two WATER-MINING Living Labs in identifying, describing and assessing best practices of processes, activities, technical solutions and infrastructures developed by their Living Labs to be replicated by other organizations and/or Living Labs across Europe.

The results of these next steps will be reported in Deliverable *D2.5 Replicability Study*. This deliverable will include an overview of the best practices of the two WATER-MINING Living Labs, together with identified barriers and drivers for replication by multiple water-oriented Living Labs from the ENOLL network and Water Europe. The outcomes of this process will be translated into guidelines for replication of the best practices.

Table of Contents

EXECUTIVE SUMMARY	5
TABLE OF CONTENTS	7
LIST OF FIGURES	10
LIST OF TABLES	11
ACRONYMS	12
1 INTRODUCTION	13
2 OVERVIEW OF THE PROJECT	15
3 SCOPE OF THE DELIVERABLE	16
4 THE EVALUATION FRAMEWORK FOR THE WATER-MINING LIVING LABS	17
4.1 Definition of a Living Lab	17
4.2 The three-layered model of a Living Lab	19
4.3 The six main building blocks and fifteen criteria of a sustainable Living Lab	20
4.4 Contextualization of the evaluation framework to the Water nexus	25
5 THE EVALUATION PROCESS	26
5.1 Steps	27
General Living Lab self-assessment by the Living Lab teams	28
Qualitative questionnaire by the Living Lab teams	28
Analysis of the results of the self-assessment	28
Evaluation of the results by Living Lab expert evaluators	29
Interviews with the Living Lab teams	29
5.2 Evaluators	30
5.3 Tools	31
Sogolytics survey software	31
Calculator self-assessment results (spreadsheet)	31
Scoring sheets Living Lab expert evaluators	32
5.4 Outcomes	33
6 EVALUATION REPORT PLATAFORMA SOLAR DE ALMERIA (PSA)	34

6.1	Visualization self-assessment Living Lab chapters – PSA	34
6.2	Visualization self-assessment Living Lab criteria – PSA.....	35
6.3	Visualization qualitative review Living Lab chapters – PSA.....	36
6.4	Visualization qualitative review Living Lab criteria – PSA	37
6.5	Qualitative feedback from the Living Lab expert evaluators for each of the six general Living Lab chapters – PSA.....	38
	General view on the current status of the Plataforma Solar de Almeria.....	38
	Strategy of the Plataforma Solar de Almeria	38
	Operations of the Plataforma Solar de Almeria.....	38
	Openness of the Plataforma Solar de Almeria.....	39
	Users & Reality approach of the Plataforma Solar de Almeria	39
	Value & Impact of the Plataforma Solar de Almeria	40
	Stability & Scale-up of the Plataforma Solar de Almeria	40
	Territorial aspect of the Plataforma Solar de Almeria	40
6.6	Recommendation for growth of PSA by Living Lab expert evaluators.....	41
7	EVALUATION REPORT FLOATING FARM(FF)	43
7.1	Visualization self-assessment Living Lab chapters – FF.....	43
7.2	Visualization self-assessment Living Lab criteria – FF	44
7.3	Visualization qualitative review Living Lab chapters – FF	45
7.4	Visualization qualitative review Living Lab criteria – FF.....	46
7.5	Qualitative feedback from the Living Lab expert evaluators for each of the six general Living Lab chapters – FF.....	47
	General view on the current status of the Floating Farm.....	47
	Strategy of the Floating Farm	47
	Operations of the Floating Farm.....	48
	Openness of the Floating Farm.....	48
	Users & Reality approach of the Floating Farm	49
	Value & Impact of the Floating Farm	49
	Stability & Scale-up of the Floating Farm.....	49
	Territorial aspect of the Floating Farm	50
7.6	Recommendation for growth of FF by Living Lab expert evaluators	50
8	COMPARISON PLATAFORMA SOLAR DE ALMERIA AND FLOATING FARM.....	52
8.1	Synergies and differences	52
8.2	Recommendations for knowledge exchange.....	54
9	NEXT STEPS	55
10	REFERENCES.....	56

ANNEXES..... 57

Questions self-assessment WATER-MINING57

Questions qualitative form WATER-MINING77

List of Figures

Figure 1. Logo Floating Farm..... 13

Figure 2. Logo Ciemat 13

Figure 3. Quadruple Helix model as presented in the Rewaise handbook..... 18

Figure 4. Common Characteristics of Living Labs - European Network of Living Labs..... 18

Figure 5. The three-layered model of a Living Lab, Schuurman (2015) 20

Figure 6. Chapters and criteria of the harmonized evaluation framework of Living Labs, Vervoort et al (2022)..... 22

Figure 7. Visualization chapters self-assessment PSA..... 34

Figure 8. Visualization criteria self-assessment PSA 35

Figure 9. Visualization chapters qualitative assessment PSA 36

Figure 10. Visualization criteria qualitative assessment PSA 37

Figure 11. Visualization chapters self-assessment FF 43

Figure 12. Visualization criteria self-assessment FF..... 44

Figure 13. Visualization chapters qualitative assessment FF 45

Figure 14. Visualization criteria qualitative assessment FF 46

List of Tables

Table 1. **Overview assigned Living Lab expert evaluators**..... 30
Table 2 - **Comparison evaluation scores six Living Lab chapters**..... 53
Table 3 - **Comparison evaluation scores Living Lab criteria** 53

Acronyms

CIEMAT	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
COP	Community of Practice
ENoLL	European Network of Living Labs
ETP	European Technology Platform
FF	Floating Farm
GAIA	Industry Association of Applied Knowledge and Technologies
IP	Intellectual Property
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
NDA	Non-Disclosure Agreement
PSA	Plataforma Solar de Almeria
R&D	Research & Development
SIRA	Strategic Innovation and Research Agenda
SWOT	Strengths, Weaknesses, Opportunities, Threads
UAB	Universitat Autònoma de Barcelona
UFE	Utilizer Focused Evaluation
WoLL	Water-oriented Living Lab
WP	Work Package
T	Task
D	Deliverable

1 Introduction

Chapter 2 of this deliverable provides an overview of the WATER-MINING project in general and its objectives.

Following this, Chapter 3 describes the scope of WP2 “Co-creation through social engagement for societal embedding”, including an overview of the tasks and deliverables related with this WP.

Within the WATER-MINING project two Living Labs are created: Plataforma Solar de Almeria (PSA) in Spain and Floating Farm (FF) in The Netherlands.



Figure 1. Logo Floating Farm

The Floating Farm is a small-scale innovative circular farm located in the port of Rotterdam, addressing animal welfare, sustainable food production, changing landscape conditions and wastewater management. The Floating Farm produces local food based on sustainable and circular principles, aiming for self-sufficiency in water and energy consumption.

The Floating Farm produces its required energy and products inside the city, and will experiment with low-energy water desalination from the river Meuse, as well as urine-water purification to produce reusable water and recover nutrients to be used as fertilizer. Floating Farm has a high public profile and attracts many citizens and local stakeholders to its activities, which engage in value exploration, behavioural reflection, and innovative solutions.



Figure 2. Logo Ciemat

The Plataforma Solar de Almeria (PSA) hosted by CIEMAT is located in southern Spain and has become a point of reference in the use of solar energy for desalination. PSA's infrastructure is contributing to the development of top-quality cutting-edge research, as well as the communication, exchange, and preservation of knowledge, technology transfer, and the promotion of innovation. In particular, PSA focuses on the use of solar thermal energy, both for concentrated solar power production and desalination, and as a WATER-MINING living lab it will support the engagement of stakeholders involved in the water-energy-food nexus through specific events and their regular programme of visits.

In Chapter 4, detailed information about the evaluation framework developed for the WATER-MINING Living Labs is presented. This chapter starts with descriptions of the Living Lab concept and the three-layered model of a Living Lab. Next, the creation of a harmonized evaluation framework for all diverse types of Living Labs, including the six main building blocks and fifteen general criteria of sustainable Living Labs is explained to enhance a common understanding of these different aspects of a Living Lab. Finally, the efforts taken to contextualize this harmonized evaluation framework to the water nexus are included.

Chapter 5 focuses on the evaluation process used in WATER-MINING. Starting with a description of the steps of the evaluation process, it also includes information about the evaluators involved in the process, the tools used to manage the process and the expected outcomes of the process.

The evaluation reports of Plataforma Solar de Almeria and Floating Farm are presented in Chapter 6 and 7. Each evaluation report present results in relation to the six main building blocks and fifteen general criteria of sustainable Living Labs and comprise:

- visualization graphs concerning the assessed maturity of both WATER MINING Living Lab.
- compiled qualitative feedback provide by the Living Lab expert evaluators.
- recommendations for growth suggested by the Living Lab expert evaluators.

Chapter 8 compares the two WATER-MINING Living Labs and takes stock of the synergies and differences between them, but also delivers recommendations for knowledge exchange between the two WATER-MINING Living Labs.

Finally, Chapter 9, covers the next steps in mentoring the two WATER-MINING Living Labs are covered. The results presented in this deliverable will be the basis of a replicability study which will be reported in Deliverable D2.5 - Replicability Study.

2 Overview of the project

WATER-MINING is a project funded by the European Commission (Horizon 2020 – Grant Agreement No 869474) with a total duration of 48 months (Start date: 01/09/2020 – 31/08/2024) and a total budget of approx. € 19 million (EU Contribution: € 16,876,959.59). The project is entitled “Next generation water-smart management systems: large scale demonstrations for a circular economy and society” and it is a project granted under the call topic “[CE-SC5-04-2019](#): Building a water-smart economy and society”. Further information about all the sister projects funded under this topic can be found at the CORDIS website [here](#). The WATER-MINING consortium comprises 38 partners from 12 countries, led by Delft University of Technology (TU Delft). More information about the project can be found at the project website (<https://watermining.eu>) as well as the dedicated website at CORDIS database (<https://cordis.europa.eu/project/id/869474>), while an overview is provided below.

The WATER-MINING project aims to provide for real-world implementations of Water Framework Directive (and other water related legislation), as well as the Circular Economy and EU Green Deal packages by highlighting and validating innovative next generation water resource solutions at pre-commercial demonstration scale. These solutions combine WATER management services with the recovery of value-added renewable resources extracted/MINED from alternative water resources (“WATER-MINING”).

The project integrates selected innovative technologies that have reached proof of concept levels under previous EU projects. The value-added end-products (water, platform chemicals, energy, nutrients, minerals) are expected to provide regional resource supplies to fuel economic developments within a growing demand for resource security. Different layouts for urban wastewater treatment and seawater desalination are proposed, to demonstrate the wider practical potential to replicate the philosophy of approach in widening circles of water and resource management schemes. Innovative service-based business models (such as chemical leasing) are being introduced to stimulate progressive forms of collaboration between public and private actors and access to private investments, as well as policy measures to make the proposed water solutions relevant and accessible for rolling out commercial projects in the future. The goal is to enable costs for the recovery of the resources to become distributed across the whole value chain in a fair way, promoting business incentives for investments from both suppliers and end-users along the value chain. The demonstration case studies are to be first implemented in five EU countries (NL, ES, CY, PT, IT) where prior successful technical and social steps have already been accomplished. The broader project consortium representation will be an enabler to transferring trans-disciplinary project knowledge to the partner countries while motivating and inspiring relevant innovations throughout Europe.

3 Scope of the deliverable

Within the WATER-MINING project, Work Package 2 (WP2) is focusing on the “Co-creation through social engagement for societal embedding”. WP2 is structured on the following four Tasks (T):

- **T2.1:** Identification of relevant stakeholders & establishment of Communities of Practice per case study;
- **T2.2:** Value sensitive design and optimization, integrating moral values, social perceptions and behaviours;
- **T2.3:** Social learning and best practices for stakeholders’ engagement;
- **T2.4:** Living Labs in the Netherlands and Spain.

The results from the implementation of this work package are presented through seven deliverables (D):

- **D2.1:** Community of Practice roadmap (associated with T2.1 & 2.2);
- **D2.2:** Value-sensitive design report (associated with T2.2);
- **D2.3:** Best practise for stakeholders' engagement (associated with Ta2.3);
- **D2.4:** Evaluation report of two Living Labs (associated with T2.4);
- **D2.5:** Replicability study (associated with T2.4);
- **D2.6:** Info sheet quick scan VSD for case studies (associated with T2.2); and
- **D2.7:** Optimalisation info sheet quick-scan VSD-2 (associated with Tas2.2).

This public deliverable comprises the fourth deliverable of WP2. The work was led by ENOLL within Task 2.4 Living Labs in the Netherlands and Spain, and more specifically Subtask 2.4.3 Evaluation of the case study Living Labs.

4 The evaluation framework for the WATER-MINING Living Labs

To create common understanding about the different aspects of the evaluation framework for the WATER-MINING Living Labs, this chapter describes all elements of the evaluation framework, including their background and a description of the development process used to create the evaluation framework.

Understanding the fundamental concepts of a Living Lab is essential in supporting both WATER-MINING Living Labs to become sustainable Living Labs beyond the scope of the WATER-MINING project

4.1 Definition of a Living Lab

Ever since the Living Lab concept emerged back in the 1980s, many interpretations about the definition of a Living Lab have been provided.

Living Labs have been variously interpreted, as a **practical tool** for pursuing innovation (Paskaleva & al, 2021), an **environment** (Wang & al, 2018), an **instrument** for advancing user-centred innovation (Kalagasidis & al, 2017), a **research method** (Zipfel & al, 2021), and an **open innovation approach** (Santonen & al, 2020).

However, within the WATER-MINING project, we use the definition of a Living Lab provided by ENoLL¹ (European Network of Living Labs).

ENoLL is the international, non-profit, independent association of Living Labs. Its aim is to promote the Living Lab concepts, enhance Living Labs and enable their sustainable implementation at a global level.

On their website, ENoLL describes Living Labs as following:

Living Labs are open innovation ecosystems in real-life environments based on a systematic user co-creation approach that integrates research and innovation activities in communities, placing citizens at the centre of innovation.

Living Labs are **problem driven**, more than solution driven, tackling wicked problems of the whole society.

In this context, Living Labs operate as **orchestrators/intermediaries** between all actors of the quadruple helix (citizens, government agencies, companies, and research organizations), focusing on **interdisciplinary collaboration**.

¹ <https://www.enoll.org>

The quadruple helix as defined by Carayannis and Campbell² in 2009 describes university-industry-government-public environment interactions within a knowledge economy.

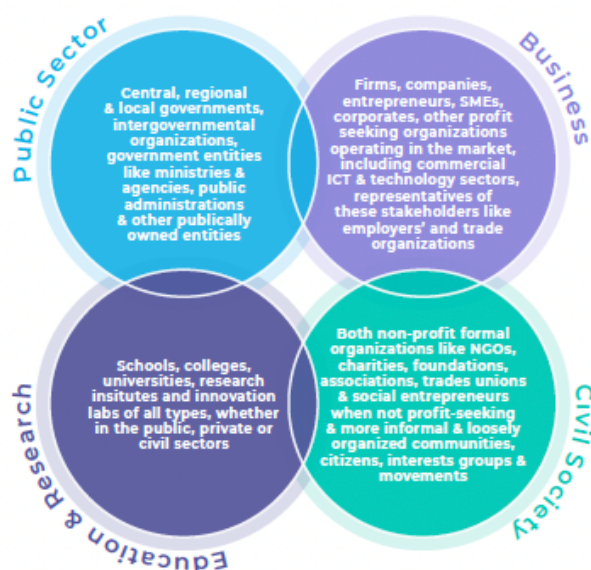


Figure 3. Quadruple Helix model as presented in the Rewaise handbook

Within a wide variety of Living Labs (e.g. Urban Living Labs, Water-oriented Living Labs, Health Living Labs...), they all have **common characteristics**, but **different implementations** according to **specific contexts**.

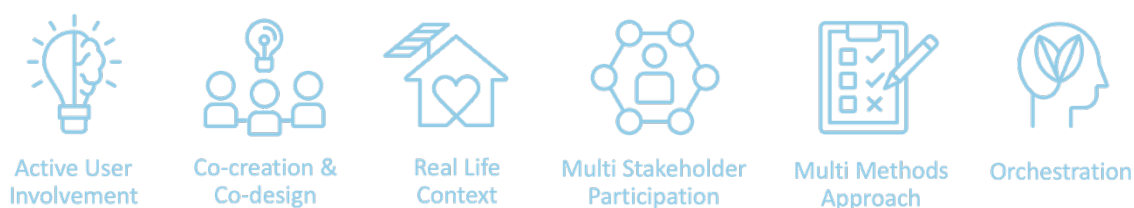


Figure 4. Common Characteristics of Living Labs - European Network of Living Labs

Next to this, Water Europe³, the European Technology Platform (ETP) for water, transformed into a member-based multistakeholder platform, describes Water-oriented Living Labs (WoLLs) as following:

² Carayannis, Elias G.; Campbell, David F.J. (2009). "'Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem". *International Journal of Technology Management*. 46 (3/4): 201. doi:[10.1504/IJTM.2009.023374](https://doi.org/10.1504/IJTM.2009.023374)

³ <https://watereurope.eu/water-oriented-living-labs/>

WoLLs are real-life, water oriented and demo-type and platform-type environments with a cross-sector nexus approach, which have the involvement and commitment of multi-stakeholders and provide a real-life 'field lab' to develop, test and validate a combination of solutions as defined in the SIRA, which include technologies, their integration as well as a combination with new business and governance models, and innovative policies based on the value of water.

WoLLs facilitate **water-oriented interventions** with a **cross-sector nexus approach** in real world and/or realistic environments.

In this context, WoLLs operate as **proactive learning and innovation ecosystems** with R&D continuity and **reproducibility**. Their **open and local multi-stakeholder** governance structures are supported by democratic control systems, with **context specific needs**.

4.2 The three-layered model of a Living Lab

The three-layered model of a Living Lab developed by Dimitri Schuurman in 2015, is one of the key concepts of a sustainable Living Lab.

This model makes a clear distinction between **three levels of a Living Lab**: the macro-, meso- and micro-level.

His PhD dissertation⁴ presents the three levels as following:

On a macro-level a Living Lab is a public-private-people partnership consisting of different stakeholders, organised to carry out Living Lab research and projects. We refer to this level as the Living Lab constellation.

On the meso-level, we discern the Living Lab innovation projects that are being carried out within the Living Lab constellation. We refer to this as Living Lab project(s).

The (research) activities that are deployed in a Living Lab we label as micro- level activities in Living Labs. This consists of a specific Living Lab methodology to cultivate user-led insights and surface tacit, experiential, and domain-based knowledge such that it can be further codified and communicated.

⁴ Schuurman, D. (2015). *Bridging the gap between Open and User Innovation? Exploring the value of Living Labs as a means to structure user contribution and manage distributed innovation*. Ghent University. Faculty of Political and Social Sciences; Vrije Universiteit Brussel. Faculty of Economic and Social Sciences, Ghent; Brussels, Belgium. (<https://biblio.ugent.be/publication/5931264>)

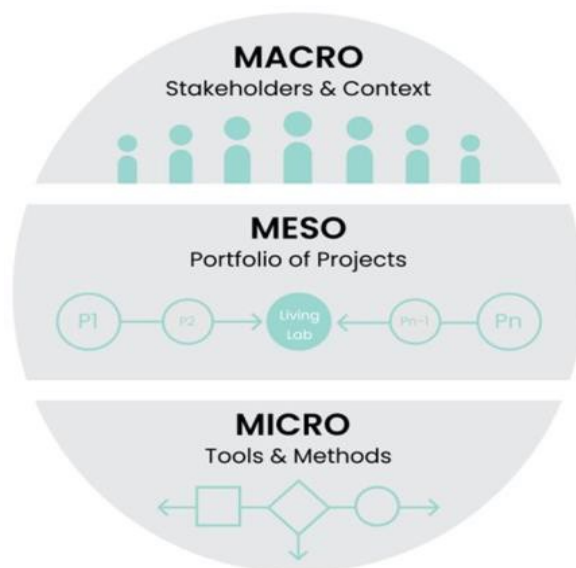


Figure 5. The three-layered model of a Living Lab, Schuurman (2015)

Furthermore, his dissertation elaborates on the importance of this approach for the sustainability of Living Labs by declaring the following:

Stahlbröst (2012) observed that some Living Labs exist where the Living Lab is set up for only one innovation project, which merges the macro and meso level, but we regard these project driven initiatives as problematic in terms of stability and sub-optimal in terms of added value being generated for the actors involved.

The three-layered model by Schuurman proved to be extremely helpful in supporting Living Labs to reach sustainability in the long-term, offering the necessary insights to support and assess the maturity of the main building blocks of a sustainable Living Lab.

In this context, the long-term approach of Living Labs (macro-level) is stretching beyond the scope of individual innovation projects (meso-level). The WATER-MINING project is such an individual innovation project at the meso-level. The broader ecosystem within which the WATER-MINING Living Labs are operating is considered the macro-level of these Living Labs.

4.3 The six main building blocks and fifteen criteria of a sustainable Living Lab

Sketching a brief history about how the six main building blocks ('chapters') and fifteen criteria of a sustainable Living Lab came into place is important to comprehend them and to show how these building blocks and criteria are applied to the two WATER-MINING Living Labs.

In 2007, when ENoLL (European Network of Living Labs) was founded, Living Labs were observed as temporary tools supporting open innovation methodologies and processes. As a result, the ENoLL network made mostly use of meso-level criteria to 'determine' and assess Living Labs within their network.

In 2015, after the introduction of the three-layered model of Living Labs by Schuurman (§4.2), ENoLL adopted six key elements of a Living Lab, shown here below, to define Living Labs:

1. Multi-stakeholder participation
2. Orchestration and collaboration
3. Co-creation
4. Active user involvement
5. Multi-method approach
6. Real-life setting

In 2018, the key principles of a Living Lab were described by Habibipour⁵:

- Openness
- Realism
- Value
- Influence
- Sustainability

In 2019, based on these new insights, ENoLL further optimized their criteria to assess Living Labs into six Living Lab 'chapters' and fifteen key criteria:

1. Organization
 - Organization, management, and governance of the Living Lab
 - Experience in Living Lab operations
 - Interest and ability to participate in regional, national, and international innovation ecosystems
2. Resources
 - Roles and responsibilities of qualified staff
 - Internal and external communication
 - Access and availability of equipment and infrastructure
3. Openness
 - Openness of innovation processes and partnerships
 - Feedback protection and author's rights
4. Users and reality
 - Users and people engagement approach
 - An iterative Living Lab process and real-life setting

⁵ Habibipour, Abdolrasoul. (2018). Living Lab Research: A state-of-the-art review and steps towards a research agenda

- Quality of methods and tools
- 5. Value
 - Co-created values for all involved stakeholders
 - Coverage of the value chain
- 6. Business model and plans for the future
 - Business model and access/ability to funding
 - SWOT⁶ analysis and strategic plans

Finally, in 2021, ENOLL started to harmonize, within the VITALISE⁷ project, the methods, and processes to evaluate the maturity of **all diverse types of Living Labs**, further implementing the three-layered model of a Living Lab to provide stronger support for the development of sustainable Living Labs within their network.

The work by Vervoort et al. (2022) resulted in a **new harmonized framework** to enable the assessment of the diverse types of Living Labs beyond the scope of their specific contexts (sectors).

The evaluation framework, shown here below includes an update of **six general Living Lab 'chapters', fifteen general criteria and thirty-four general KPIs (Key Performance Indicators)**, providing a stronger emphasis on the macro-level of a Living Lab to support them in becoming more impactful and stable beyond the scope of individual Living Lab projects (meso-level).

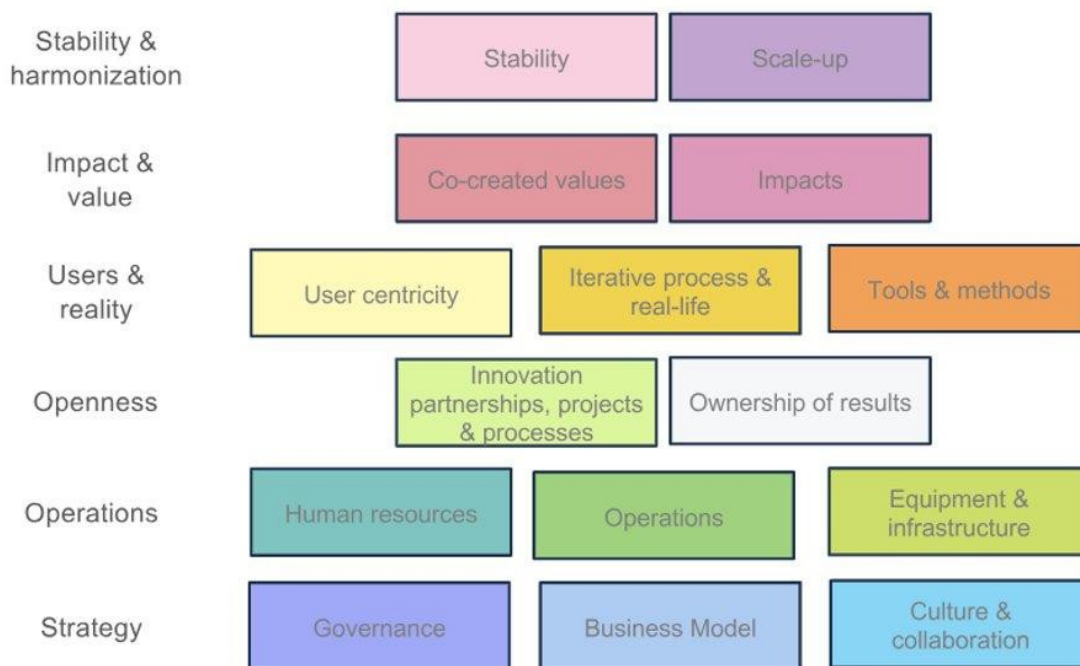


Figure 6. Chapters and criteria of the harmonized evaluation framework of Living Labs, Vervoort et al (2022-

⁶ Strengths, Weaknesses, Opportunities & Threats

⁷ VITALISE – Virtual Health and Wellbeing Living Lab Infrastructure (H2020, GA. 101007990) <https://vitalise.project.eu>

Each of the Living Lab chapters and criteria pays attention to a specific aspect of a sustainable Living Lab.

The **Strategy chapter** focuses on the macro-level of a Living Lab, considering the multi stakeholder participation and the orchestration role of the Living Lab, looking at their collaboration strategies, while investigating the business model of the Living Lab as well. Within this chapter three general Living Lab criteria are included:

- **Governance:** the Living Lab governance is strong if it includes all the major actors of the quadruple helix, along with a systematic participative approach (rules and processes), a shared vision and mission which can impact the Living Lab strategy and the projects for better outcomes, and a clear collaboration management (a clear definition of each actor's roles).
- **Business Model:** a sustainable Living Lab business model enables the Living Lab to strengthen its status and service portfolio via active stakeholder partnerships and financial engineering.
- **Culture & collaboration:** the culture of a Living Lab empowers internal collaboration and communication strategies and strengthens external collaborations within an open and solid innovation culture.

The **Operations chapter** covers all levels of a Living Lab, looking at the way the Living Lab manages its operations, considering the necessary equipment and infrastructure and human resources of the Living Lab. Within this chapter three general Living Lab criteria are included:

- **Human resources:** the Living Lab has clearly defined internal roles and assigned people to these roles in a flexible and sufficient way.
- **Operations:** the Living Lab shows experience in executing projects and activities supported by recurrent self-monitoring processes to monitor the overall performances of the Living Lab.
- **Equipment & infrastructure:** the Living Lab has sufficient access to the equipment (hard- and software) & infrastructure (facilities, networks) they need to run their Living Lab and its main activities.

The **Openness chapter** deals with the openness of a Living Lab from a macro-, meso- and micro-level perspective by focusing on the processes, the partnerships, and the feedback & Intellectual Property (IP) protection. Within this chapter two general Living Lab criteria are included:

- **Innovation partnerships, projects & processes:** the Living Lab has the needed processes in place to safeguard an ethical approach and to make sure they work in a reflective and iterative way.
- **Ownership of results:** the Living Lab has monitored and transparent processes and agreements to protect stakeholders' feedback and deal with property rights (IPR).

The **Users and Reality chapter** indicates the ways of collaboration with users and the levels of engagement and participation by focusing on the implementation of an iterative Living Lab process in real-life contexts and investigating the quality of used tools and methods. Therefore, it relates to all three levels of a Living Lab. Within this chapter three general Living Lab criteria are included:

- **User-centricity:** a user-centric Living Lab has an active and diverse group of users, that represents the ecosystem of the Living Lab, influencing the innovation processes.

- **Iterative process and real-life:** the Living Lab actively engage and involves users in every phase of the innovation process/project using realistic real-life contexts of the users.
- **Tools and methods:** the Living Lab has strong engagement strategies, supported by transparent and tailored communication processes, using a range of tools and methods to interact with their users and stakeholders, relevant to specific phases of the innovation cycle.

The **Impact and Value chapter** assesses the co-created values (e.g. knowledge sharing, capacity building, network building) by whom but even more importantly for whom. Furthermore, it investigates different impact aspects of the Living Lab (e.g. societal, economic, environmental, regulatory, academic...). Therefore, this chapter is related to all levels of a Living Lab. Within this chapter two general Living Lab criteria are included:

- **Co-created values:** the Living Lab co-creates values for all types of stakeholders (including users) in their value chain by sharing knowledge and building capacities of their stakeholders.
- **Impacts:** based on their strategies, the Living Lab assesses (long-term) impacts within one or more of the following aspects of their ecosystem: societal, environmental, economic, regulatory, academic.

The **Stability and Scale-up chapter** delivers insights on the (financial) stability of the Living Lab from a macro-level perspective, considering different needed aspects like service offerings and strategy plans. Aligned with this, this chapter looks at the level of harmonization of these strategic and operational building blocks beyond their own Living Lab since this will increase the sustainability of the Living Lab. Within this chapter two general Living Lab criteria are included:

- **Stability:** the stability of a Living Lab is enhanced by strong relationships with partners and customers, the development of value propositions and a mature, balanced, and diversified set of funding and revenue streams.
- **Harmonization and scale-up:** the Living Lab can replicate and scale-up products, solutions (including infrastructures) and services by participation in initiatives/projects based on harmonized knowledge, skills, standards, methods, tools, and processes.

This harmonized evaluation framework was used as a basis to evaluate both WATER-MINING Living Labs. However, a contextualization to the water nexus took place by involving the partners from WP2 (GAIA, Coventry University, UAB, Water Europe and ENoLL), together with the two WATER-MINING Living Labs in the development of the necessary assessment processes (§5.1) and tools (§5.3). This was undertaken to guarantee that the processes and tools were user focused and to integrate the necessary water specific criterion (§4.4) into the evaluation method for WATER-MINING.

The outcomes of the evaluation of the two WATER-MINING Living Labs are described in chapters 6 and 7 of this deliverable.

4.4 Contextualization of the evaluation framework to the Water nexus

The harmonized evaluation framework presented above (§4.3) was developed for all diverse types of Living Labs across the globe. As such it is focussed on the assessment of the maturity of the WATER-MINING Living Labs as open innovation ecosystems in general, without taking water specific contexts into account.

To safeguard a contextualization of this general evaluation framework to the water sector and to adapt it into a utilizer focused evaluation (UFE) framework, the evaluation process, steps, and tools were co-designed with Living Lab experts from the water sector and the two WATER-MINING Living Labs.

Contextualization to the water sector was implemented by:

- adapting the answering possibilities of the quantitative self-assessment tool to the water sector via interactive meetings with each of the two WATER-MINING Living Labs and the Living Lab experts from the water sector involved in WP2.
- integrating a new thematic domain specific evaluation criterion into the qualitative part of the evaluation via interactive meetings with Living Lab experts from the water sector involved in WP2.

Following this, a new thematic domain specific evaluation criterion was co-developed by the partners of WP2 and integrated into the qualitative part of the evaluation process:

*The concept of Water oriented Living Labs (WoLL) is tied to **real-life urban, industrial, or rural areas** (or a combination of those) that evolves into a WoLL by becoming a real-life open innovation ecosystem, where **water innovations and solutions** can be developed, tested, and ultimately prepared for market uptake.*

*Please cite and describe the **territorial area** your Living Lab is linked to. Elaborate on the challenges it tries to address and explain **how innovations are implemented in the territory to improve the sustainable water management of the area.***

On a more wide and conceptual level, this thematic domain specific evaluation criterion is a basic characteristic of a WOLL, which is tied to its context and activities. It is a yes/no kind of box to check, without needs for expansion.

5 The evaluation process

Evaluation processes should support the users of the process and provide value to all participants.

Utilization-Focused Evaluation (UFE), developed by Michael Quinn Patton, is an approach based on the principle that an evaluation should be judged on its usefulness to its intended users. Therefore, evaluations should be planned and conducted in ways that enhance the likely utilization of both the findings and of the process itself to inform decisions and improve performance⁸

Therefore, within the WATER-MINING context we ensured a common understanding of the complete evaluation process, all its steps and tools by the users involved and interested in the evaluation.

Within the evaluation process of WATER-MINING we distinguish four diverse types of users, from those highly involved in the process to those interested about the process and its results:

- The two WATER-MINING Living Labs (involved)
- The Living Lab experts (from the water sector) (involved)
- All WATER-MINING partners (interested)
- The wider community interested in the evaluation of Water-oriented Living Labs (interested)

To support the involved users (WATER-MINING Living Labs and Living Lab experts), the process and its tools were co-designed and implemented together with these two diverse types of users, also focusing on the contextualization to the water sector (§ 4.4) to guarantee the usefulness of the process and to increase the adoption of the process and its tools.

The WATER-MINING Living Labs were involved via recurrent bilateral mentoring sessions between ENOLL and Floating farm and between ENOLL and PSA. The Living Lab experts were involved via the recurrent meetings related to T2.4 - Living Labs in the Netherlands and Spain. Next to this, interactive workshops with Living Lab experts from a pilot group created within the Vitalise project took place to scope and co-design a harmonized evaluation method, process, and tools for all diverse types of Living Labs. The outcomes of these workshops were presented to the partners involved in the WATER-MINING Work Package 2 to make sure the correct contextualization to the water sector took place.

These steps resulted in a **contextualized evaluation method**, existing out of four steps (§ 5.1) in which the two WATER-MINING Living Labs were involved as organizations being evaluated and supported together with Living Lab experts operating as evaluators (§5.2).

To support the interested users, dissemination activities about the process and its results were undertaken within the pilot group of the Vitalise project and the executive board of ENOLL.

⁸ <https://www.betterevaluation.org/methods-approaches/approaches/utilisation-focused-evaluation>

In addition, this method was explained to all WATER-MINING partners during the General Assembly meeting of the WATER-MINING project in Larnaca, Cyprus in October 2023.

Finally, the KPIs supporting the evaluation method; together with a description of the evaluation process and its tools, will be published in a conference paper called "A harmonized assessment method and KPIs for evaluating Living Labs" included in the proceedings of the XXXV ISPIIM innovation conference, to be held in Tallinn, Estonia on 09-12 June 2024.

5.1 Steps

The evaluation process within WATER-MINING consists of **two phases**, a quantitative self-assessment and a qualitative evaluation by Living Lab expert evaluators. This resulted in an individual evaluation report, including recommendations for growth for the two WATER-MINING Living Labs.

Between January and March 2024, the following five steps were implemented and executed:

1. General Living Lab self-assessment by the Living Lab teams
2. Completion of the qualitative questionnaire by the Living Lab teams
3. Analysis of the results of the self-assessment by ENoLL and partners of WP2
4. Evaluation of the qualitative and quantitative results by Living Lab expert evaluators
5. Interviews with the Living Lab teams

This approach is aligned with the certification process of the European Network of Living Labs (ENoLL) designed to harmonize evaluation and execute it the highest possible quality.

Their application guidelines⁹ of 2023 mention the following:

To ensure high value-added exchanges within the network and quality outputs from ENoLL certified Living Labs, accepted membership, or accepted to grow membership is limited to those organizations able to demonstrate the consistent use of a Living Lab approach.

As such, ENoLL Living Labs undergo a structural and methodological quality assessment on their maturity as an innovation ecosystem. This seal of quality makes ENoLL Living Labs the global standard on user-driven innovation.

Using their harmonized evaluation framework and approach (§ 4.3) as a basis for the quantitative and qualitative evaluation within WATER-MINING, offered both WATER-MINING Living Labs the opportunity to receive high value-added evaluation reports with recommendations from Living Lab expert evaluators.

⁹ <https://enoll.org/wp-content/uploads/2022/12/application-guidelines-wave-2023-13122022.pdf>

Moreover, it allows them to use the outcomes (§5.4) of the evaluation process within WATER-MINING to apply for ENOLL membership in the future if they pass the threshold of the ENOLL certification.

In addition to this evaluation process, **a comparison of the individual evaluation reports** was done by the Living Lab partners of WP 2 to identify synergies and differences between the two WATER-MINING Living Labs and to identify common barriers and best practices. This comparison will support the development of the replicability study described in Subtask 2.4.4 of the Grant Agreement, seeking for ways to multiply the best practices of the project running in the Netherlands and Spain and to identify the boundaries of the multiplication if any.

General Living Lab self-assessment by the Living Lab teams

The first step of the evaluation process was the completion of a self-assessment survey, based on the harmonized evaluation framework of ENOLL consisting out of six general Living Lab chapters and fifteen general Living Lab criteria. This self-assessment survey was contextualized to the water sector by adapting the answering possibilities to the different questions.

This self-assessment survey was hosted on a survey software called Sogolytics.

The self-assessment was completed by the two WATER-MINING Living Lab teams in January-February 2024.

A full overview of all the questions of this self-assessment is added as Annex 1 to this deliverable.

Qualitative questionnaire by the Living Lab teams

The second step of the evaluation process was the completion of a qualitative questionnaire.

This qualitative questionnaire composed of fifteen qualitative general Living Lab questions, aligned with the harmonized evaluation framework of ENOLL (§4.3), and one qualitative question on the new thematic domain specific evaluation criterion (§4.4) developed within the WATER-MINING project.

Next to this, the new thematic domain specific evaluation criterion covered the territorial aspect and demonstration of innovation.

This survey was hosted on a survey software called Sogolytics.

The two WATER-MINING Living Lab teams completed this qualitative questionnaire in February 2024.

A full overview of all the questions of this qualitative questionnaire is added as Annex 2 to this deliverable.

Analysis of the results of the self-assessment

Once the Living Labs had completed the self-assessment survey, ENoLL administrators, checked for clarity and made sure that the self-assessment was executed correctly prior to analysis. Interactions took place via email where necessary.

Following this, in February 2024, ENoLL calculated and provided visualizations of all self-assessment scores for each element, using established and agreed scoring tables for each criterion. This material was provided to help the evaluators assess the maturity of the Living Labs, Chapters 6 and 7 provide an overview of the complete evaluation of the two WATER-MINING Living Labs.

Evaluation of the results by Living Lab expert evaluators

The fourth step of the evaluation process was a blind peer review by Living Lab expert evaluators (§5.2) of the results of the quantitative self-assessment and the qualitative questionnaires completed by the two WATER-MINING Living Labs.

Each WATER-MINING Living Lab was assessed independently by three Living Lab expert evaluators based on the information provided in the preceding section.

To perform their evaluations, each evaluator used scoring tables from 0 to 5 for each of the fifteen Living Lab criteria. Every evaluator received a scoring spreadsheet (.xls format) to complete their assessment.

No scoring table was available for the new water domain specific criterion to assess the territorial aspect of the Water-oriented Living Lab since this territorial aspect is strongly related to the specific context of a water-oriented Living Lab. Therefore, it's hard to 'map' these different contexts on a scoring table.

As part of the evaluation process, each evaluator provided written feedback in an evaluation template (editable document, .docx format) about each of the six chapters of a sustainable Living Lab and about the territorial aspect of the Living Lab. This feedback also included recommendations to help the growth of the assessed WATER-MINING Living Lab.

After these individual assessments, ENoLL aggregated the scores and feedback to enable the three evaluators to make their final conclusions and support the organization of the interviews with the Living Lab teams of the two WATER-MINING Living Labs.

This step of the evaluation process was completed in February-March 2024.

Interviews with the Living Lab teams

The fifth and final step of the evaluation process was the organization of an online interview with both WATER-MINING Living Lab teams. The purpose of these interviews was twofold:

- deepening the understanding of the partners of WP2 concerning possible unclarity provided by the Living Lab teams.

- providing first insights of the partners of the WP2, based on the feedback of the evaluators, to the Living Lab teams.

The results and feedback of these interviews were integrated into the final evaluation reports of the two WATER-MINING Living Labs.

These interviews took place online in March 2024.

5.2 Evaluators

The evaluation of each of the two WATER-MINING Living Labs was conducted independently by three Living Lab expert evaluators.

To ensure the highest-quality possible for the evaluation, assigned evaluators needed to have:

- 5 or more years experience of working on Living Labs
- be proficient use of the English language
- have affiliation with the water sector

To avoid bias in the evaluation, no evaluators were assigned from the same countries as the Living Labs being evaluated, i.e. Spain (PSA), and the Netherlands (FF).

To optimize the comparison of both evaluation reports two assigned Living Lab expert evaluators assessed both PSA and FF.

Therefore, in total 4 Living Lab expert evaluators participated in the evaluation process.

To safeguard the neutrality of the evaluation, the Living Lab expert evaluators remained anonymous to the WATER-MINING Living Labs. Therefore, this deliverable will not mention their names.

Table 1 here below provides an overview of the origin and experience of assigned evaluators.

Table 1. Overview assigned Living Lab expert evaluators

	Plataforma Solar deAlmeria		Floating farm	
	Country of origin	Experience	Country of origin	Experience
Evaluator 1	UK	13 years	UK	13 years
Evaluator 2	Belgium	17 years	Belgium	17 years
Evaluator 3	Turkey	12 years	Spain	13 years

5.3 Tools

The evaluation process was supported by the following tools.

Sogolytics survey software

All the questions from the quantitative self-assessment survey and the qualitative questionnaire (§5.1) were implemented into an existing survey software package, Sogolytics¹⁰.

Sogolytics is a software which allows users to:

- access the surveys online
- collect data online in a user-friendly way
- visualize questions based on previous given answers,
- forward previous given answers to follow up questions,
- upload supporting materials like images, PDFs, and other types of documents (qualitative questionnaire)
- interrupt the completion of a certain survey and restart the survey later via the 'Save and continue' function

Both WATER-MINING Living Labs received the contents of the quantitative and qualitative questionnaires several weeks prior to the online completion of the self-assessment to support them in the collection of the necessary data needed to complete both questionnaires.

The content of both questionnaires can be found as Annex 1 (self-assessment) and Annex 2 (qualitative questionnaire) of this deliverable.

Calculator self-assessment results (spreadsheet)

For the analysis of the results of the self-assessment survey, ENOLL developed a spreadsheet calculator to register the results of the analysis.

The results of the self-assessment got calculated based on a set of fifteen scoring tables for each of the fifteen general Living Lab criteria developed by ENOLL. Each of these scoring tables indicates the maturity of a Living Lab on a scale from 0 to 5.

Each scoring table uses the following division in scoring:

- 0 = Non-existent

¹⁰ <https://www.sogolytics.com>

- 1 = Very weak
- 2 = Weak
- 3 = Good
- 4 = Very good
- 5 = Excellent

There are 3 distinct types of criteria:

- **A-criteria:** these criteria are essential in the definition of a Living Lab and therefore get a weight of 15 points for each criterion
- **B-criteria:** these criteria are important to assess the maturity of a Living Lab and therefore get a weight of 10 points for each criterion
- **C-criteria:** these criteria are a valuable add-on to the A & B criteria and therefore get a weight of 5 points for each criterion

For each criterion, a validated description about what it evaluates is provided.

The contents of these scoring tables cannot be disclosed in this deliverable since the scoring tables are used for the assessment of members and incoming applications of Living Labs by ENOLL.

The same calculator also visualized the **self-assessed maturity scores** of each of the two WATER-MINING Living Labs concerning the six general Living Lab chapters and fifteen general Living Lab criteria (§4.3).

These visualizations are integrated in the individual evaluation reports to provide a summarized overview of the self-assessment of the two WATER-MINING Living Labs.

Scoring sheets Living Lab expert evaluators

To support the three Living Lab expert evaluators assigned to the individual review of each of the two WATER-MINING Living Labs, ENOLL developed a scoring spreadsheet to help them score the results of the qualitative questionnaire.

The results of the qualitative questionnaire got calculated based on a different set of fifteen scoring tables for each of the fifteen general Living Lab criteria developed by ENOLL. Each of these scoring tables indicates the maturity of a Living Lab on a scale from 0 to 5.

For each of these scoring tables for the qualitative questionnaire the same division and types of criteria as for the self-assessment applied.

An additional aggregated scoring spreadsheet (.xls format), compiled the three individual assessments by the assigned Living Lab expert evaluators.

This aggregated scoring sheet also visualized the **qualitative reviewed maturity scores** of each of the two WATER-MINING Living Labs concerning the six general Living Lab chapters and fifteen general Living Lab criteria.

These visualizations were used to support the three Living Lab expert evaluators in the creation of the final evaluation reports of each of the WATER-MINING Living Labs

These visualizations are integrated in the individual evaluation reports to provide a summarized overview of the qualitative review of the two WATER-MINING Living Labs.

5.4 Outcomes

Based on all the steps of the evaluation process presented before (§5.1), an individual evaluation report was created for each Living Lab, comprising the following elements:

- Visualization self-assessment Living Lab chapters
- Visualization self-assessment Living Lab criteria
- Visualization qualitative review Living Lab chapters
- Visualization qualitative review Living Lab criteria
- Qualitative feedback from the Living Lab expert evaluators for each of the six general Living Lab chapters
- Qualitative feedback from the Living Lab expert evaluators for the new domain specific criterion (§4.4)
- Recommendations for growth from the Living Lab expert evaluators

In addition, a comparison report of the two WATER-MING Living Labs was created with the following elements:

- Synergies and differences between the two WATER-MINING Living Labs
- Comparison of the six general Living Lab chapters
- Comparison of the new domain specific criterion
- Recommendations for knowledge exchange between the two WATER-MINING Living Labs from the Living Lab expert evaluators

6 Evaluation report Plataforma Solar de Almeria (PSA)

This chapter provides a consolidated overview of the evaluation of the Plataforma Solar de Almeria.

This overview includes visualizations of both the quantitative self-assessment and the qualitative assessment, consolidated feedback of the Living Lab expert evaluators and recommendations for growth from the Living Lab expert evaluators.

6.1 Visualization self-assessment Living Lab chapters – PSA



Figure 7. Visualization chapters self-assessment PSA

6.2 Visualization self-assessment Living Lab criteria – PSA

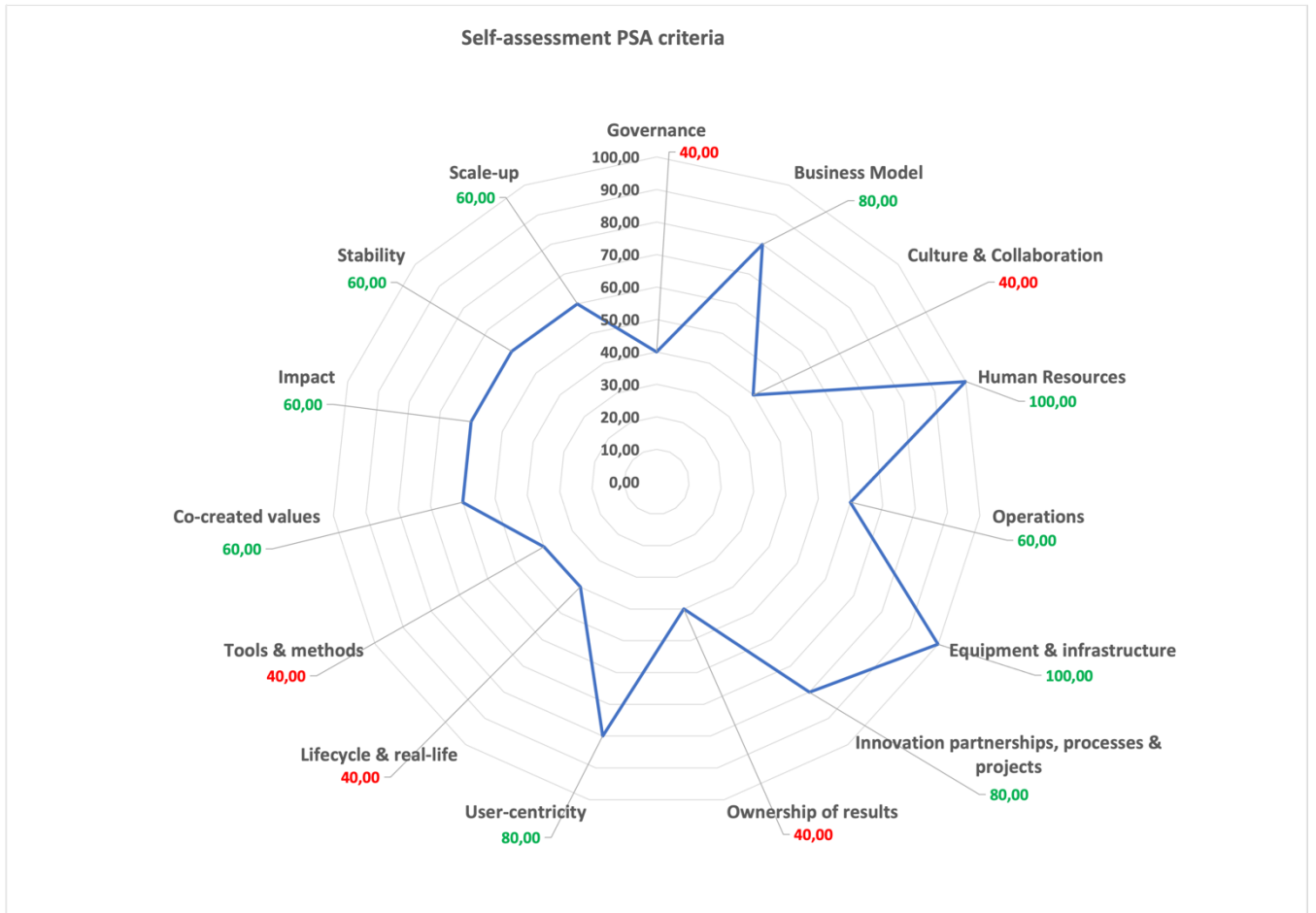


Figure 8. Visualization criteria self-assessment PSA

6.3 Visualization qualitative review Living Lab chapters – PSA

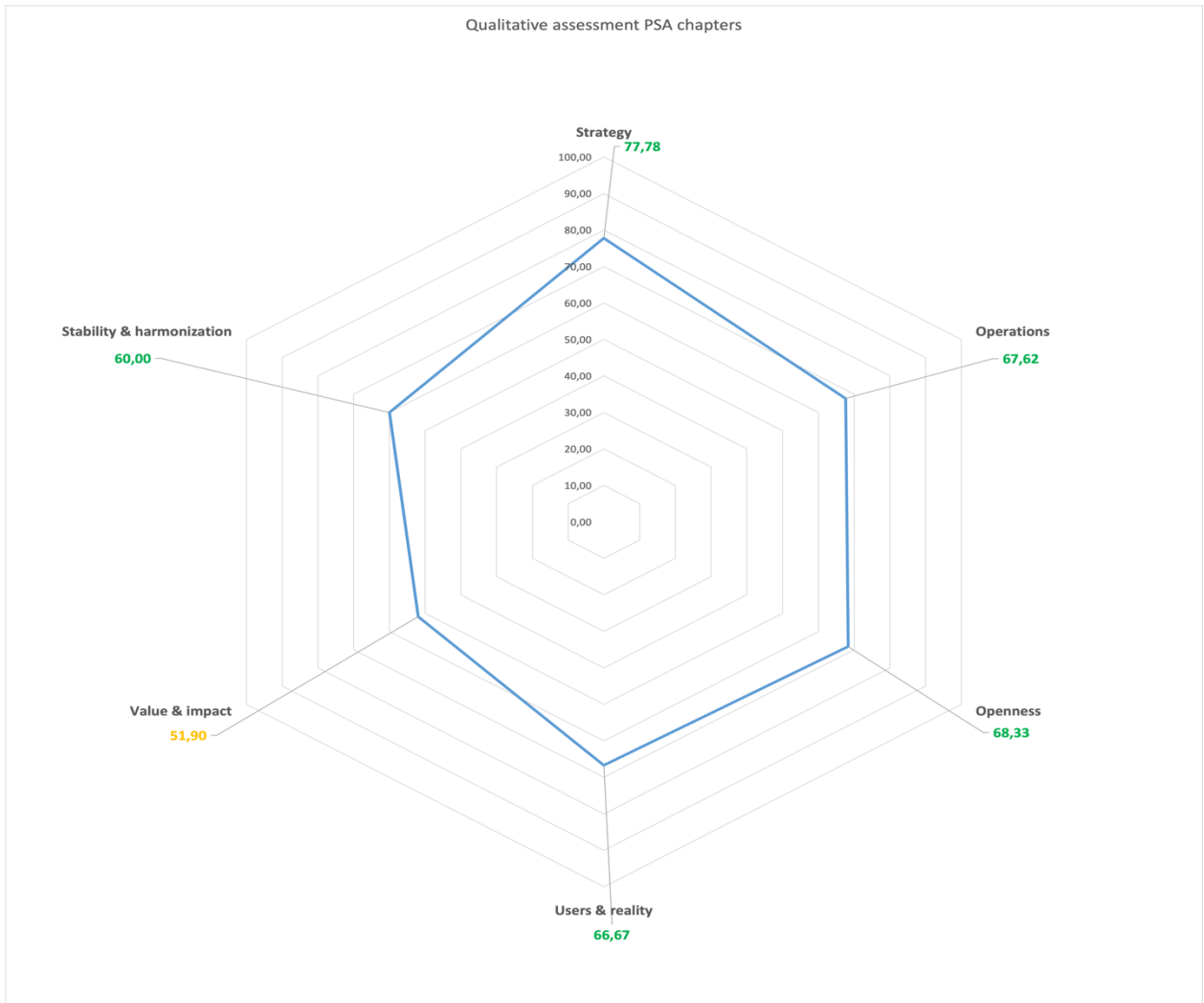


Figure 9. Visualization chapters qualitative assessment PSA

6.4 Visualization qualitative review Living Lab criteria – PSA

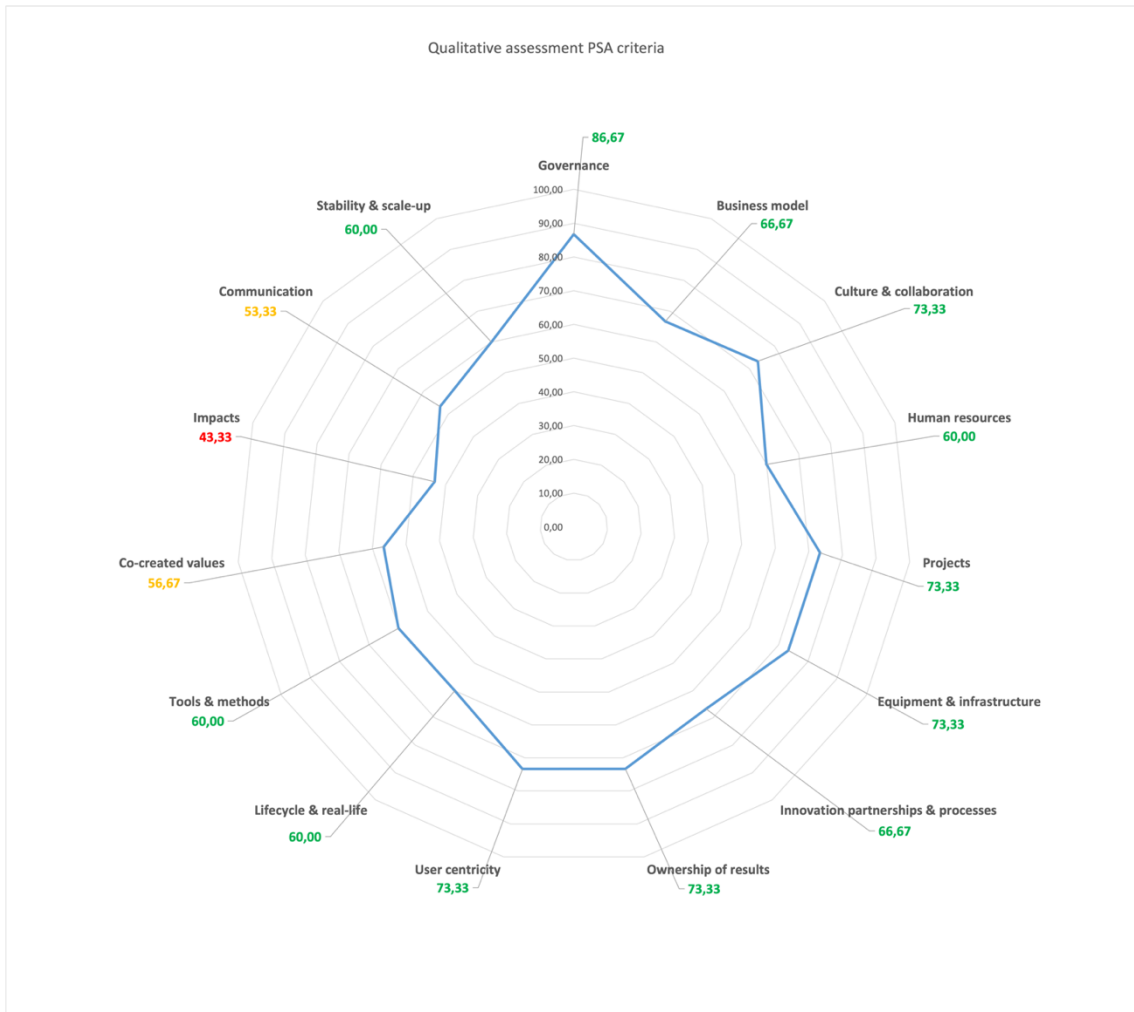


Figure 10. Visualization criteria qualitative assessment PSA

6.5 Qualitative feedback from the Living Lab expert evaluators for each of the six general Living Lab chapters – PSA

Three Living lab expert evaluators evaluated all submitted materials from PSA and provided qualitative feedback for each of the six chapters (§4.3) and the territorial aspect. Next to this they provided a general view on the current status of Plataforma Solar de Almeria.

Furthermore, Water Europe provided additional feedback concerning the water specific criterion, being the territorial aspect of the Living Lab. The WOLL assessment procedure is in line with the evaluation methods proposed by EnoLL. However, an additional factor is of crucial relevance for Water-Oriented Living Labs, which must be considered in this context: the candidates must be geographically situated within the territory and must tackle a territorial water challenge.

You can find the consolidated feedback of the three Living Lab expert evaluators and Water Europe below.

General view on the current status of the Plataforma Solar de Almeria

The Plataforma Solar de Almeria is strong in some specific areas such as facilitation of users in workshops, project management and use of the resources of the mother organization. However, currently it has limited experience in Living Lab operations but has the potential to become a sustainable Living Lab if the recommendations made by the Living Lab expert reviewers are implemented.

Strategy of the Plataforma Solar de Almeria

The description of the governance of the PSA is very good, including stakeholder representation and a number of advisory committees, meeting on a monthly basis.

A charter was included along with the goals and objectives of the PSA.

The included business model canvas in the application illustrates the aims, stakeholders, and value of the PSA. However, for the moment the business plan seems vulnerable due to the fact that most of the income is from projects.

As a result, the business model needs further development and direction as the PSA itself is not a separate entity yet, but a joint effort between a couple of stakeholders that are pooling people and infrastructure.

The defined ecosystem and collaborations of the PSA are extensive.

Nevertheless, no examples were provided of what kind of decisions have been made through the steering committee of the PSA and what kind of collaborations have been done with stakeholders.

Operations of the Plataforma Solar de Almeria

The PSA presents a nice team, including an organizational chart with annexes and photos, but with only a rather small amount of their time dedicated to the Living Lab operations.

Via the Living Lab partners, there is a lot of infrastructure available linked to the desalination topic.

The equipment used mostly belongs to partner organizations of the PSA while the PSA itself provides some spaces for workshops and software for trainings and workshops.

The WATER-MINING project described illustrates intense stakeholder involvement and a concrete solution. The project shows positive outcomes.

However, more details could be added regarding the other projects, and the timeframe of activities since it is not clear when the PSA has been established and started doing projects. Nevertheless, there seems to be a good pipeline of activities which are cross border and cross-sectoral.

Openness of the Plataforma Solar de Almeria

Required processes for monitoring, transparency and agreements are in place and described in an annex document in Spanish. This made it very difficult for the Living Lab expert evaluators to judge fully the content of that document.

Via the Community of Practice (CoP) and a lot of experience on contracting by the host organization (CIEMAT), the openness and ownership seems to be well covered.

However, the PSA relies on CIEMAT for the IP issues and have little knowledge within their Living Lab team regarding the process.

The Living Lab expert reviewers couldn't find evidence showing any agreements made for any rights.

Users & Reality approach of the Plataforma Solar de Almeria

The user-centred approach of the PSA has been well described. This shows that users are involved at different phases of the project and that their views are considered in subsequent actions.

With the community of practice (COP) and multiple co-creative activities during the projects, there is a lot of attention on user involvement.

However, based on the descriptions and info provided, the tools and methods are rather basic (brainstorms, co-creation sessions, evaluation surveys...).

The main missing part is the kind of tools and methods they use to get stakeholders and users involved. This has not been mentioned in the application.

Therefore, it doesn't look like the PSA already developed their own 'toolbox' suited to the context and topic.

Three examples were provided with different stakeholder groups, from different contexts and stages of the Living Lab innovation lifecycle. This demonstrates a commitment and an embedding of the Living Lab approach in different contexts. However, due to the narrative aspect of the application, it is difficult to see how this works throughout a project.

Value & Impact of the Plataforma Solar de Almeria

The PSA is creating certain results for other organizations by a good range of mechanisms, but it is not clear what values are created from the PSA. Next to this, a lot of future tense is being used. There seems to be a lot of potential, but more effort and dedication will be needed to effectively realize this.

Theoretical and philosophical, monitoring systems concerning impacts and value creation are in place, but the Living Lab expert evaluators couldn't find any tangible impact figure that shows the PSA currently is creating impact on the ecosystem already.

Internal and external communications are described and working but seem to be mostly focused on academic dissemination. The other channels and target groups seem to be in a more exploratory mode.

The PSA does not have its own communication strategy and communication channels. The Living Lab is dependent on the mother company CIEMAT, which is okay if the activities of the PSA are not lost in the bigger organization.

More importantly the PSA does not have a communication role defined in the Human Resources section and in their organigram.

Stability & Scale-up of the Plataforma Solar de Almeria

Within the PSA, there seems to be a pipeline of activity and plans for future growth/merger and how this work is being applied in other projects and outside the EU.

However, details are missing to give a full picture of what is going on, which risks are considered and the likelihood of events happening to be counted for, linked back to the business model. The plans are described on the scaling, but these are mostly in the conditional tense and lack a bit of scope.

The PSA does have short term projects that will ensure the financial support for the next few years and have medium term to grow the scope and reach of their Living Lab through joint partnerships.

There is a need to define a long-term strategy and business model to secure a sustainable living lab.

Territorial aspect of the Plataforma Solar de Almeria

The Plataforma Solar de Almeria is gathering expertise, facilities and stakeholders to try and come up with solutions to better desalinate water in order to tackle water scarcity, which is a contextual and characteristic problem regarding the Andalusia area. This includes perfectly the territorial aspect and the WOLL's scope towards a better sustainable water management of the territory.

6.6 Recommendation for growth of PSA by Living Lab expert evaluators

Since the evaluation report is also intended to support the Plataforma Solar de Almeria to become a sustainable Living Lab beyond the scope of the WATER-MINING project, the Living Lab expert evaluators provided recommendations for each of the six chapters of a sustainable Living Lab.

The aim of these recommendations is to help the PSA to further improve their current status and to guide them with specific actions for further growth.

Concerning the **Strategy** of the PSA, the Living Lab expert evaluators recommend that:

- The governance structure should be further developed with names and roles of people involved in all the decision-making processes.
- The strategic roadmap should also mention key points along the way towards the overall objectives described.
- The business plan should be able to reduce risks through the creation and balancing of other income channels like e.g., rental of facilities, paid advisory services...

Looking at the **Operations** of the PSA, the Living Lab expert evaluators advise that:

- At least 1 full-time person should be employed to take care of the PSA activities. When the Living Lab scales up in terms of projects and ambitions, a bigger team with at least a couple of (nearly) full-time dedicated profiles will be necessary to manage all operations.
- The PSA should continue to monitor the skills needed in their Living Lab team to fill the gaps within them.
- The Living Lab could include pictures of its facilities in their publication materials in the future to give a clear overview of the physical space of the Living Lab. This will help them to attract more clients/stakeholders.
- Although the PSA is part of another organization, they should have their own autonomy and operations management structure.

To further improve the **Openness** of the PSA, the Living Lab expert evaluators suggest that:

- The Living Lab should create a clear overview to show the benefits of collaboration with the Living Lab for stakeholders, including documented examples of benefits for the stakeholders.
- Although the lack of knowledge about IP issues within the PSA team is not very critical, the Living Lab should describe their approaches with some examples, even when they are coming from their hosting operation CIEMAT.
- The main key processes of the PSA concerning ownership of results and running projects in an ethical and iterative way must be better defined.

To grow the **User-centric and Real-life approach** of the PSA, the Living Lab expert evaluators advocate that:

- The PSA should integrate more diverse and more advanced types of tools and methods to engage and involve users in their Living Lab activities.
- The PSA should focus on further increasing their knowledge and skills concerning co-creation processes.
- The PSA, over time (long term), should investigate what methods, used and/or developed by them are innovative, and could be adopted by other Living Labs.
- The real-life cycle approach of the PSA should be better detailed, and especially engagement policies, tools and examples should be more convincing to highlight their uniqueness when it comes to involving users in their real-life contexts.

To enforce the **Value & Impact** of the PSA, the Living Lab expert evaluators propose that the Living Lab should:

- Assign the communication role within their operational Living Lab team to strengthen their community and safeguard value-creating exchanges with all their diverse types of stakeholders.
- Make a stakeholder value matrix for each project the Living Lab manages to better show the values created for each stakeholder.
- Highlight more their achievements concerning publications in journals and conferences and their impact values they managed to get published in/participated in.
- Focus on the set up of a proper management system to measure the distinct types of impacts (societal, economic, environmental, academic, regulatory, technological). For now, it is not clear how this is managed overall, e.g., who is responsible, if there is a dissemination & communication plan...

Regarding the **Stability & Scale-up** of the PSA, the Living Lab expert evaluators feel there is a need to better define a long-term strategy and a clearer business model to secure their position as a sustainable Living Lab.

Finally, considering the **Territorial aspect** of the PSA, the Living Lab expert evaluators, together with Water Europe, observe that the territorial area and the technological challenges that need to be overcome to make the PSA sustainable, have been briefly described.

However, they note that:

- The PSA should provide more details concerning the organization of their collaboration with the industry sector.
- A better explanation should be provided by the PSA about how solar energy will impact different sized business and employees.
- The PSA should elaborate more on how they plan to implement developed innovations within their territory to improve the sustainable water management of the area.

7 Evaluation report Floating Farm (FF)

This chapter provides a consolidated overview of the evaluation of the Floating Farm.

This overview includes visualizations of both the quantitative self-assessment and the qualitative assessment, consolidated feedback of the Living Lab expert evaluators and recommendations for growth from the Living Lab expert evaluators.

7.1 Visualization self-assessment Living Lab chapters – FF



Figure 11. Visualization chapters self-assessment FF

7.2 Visualization self-assessment Living Lab criteria – FF

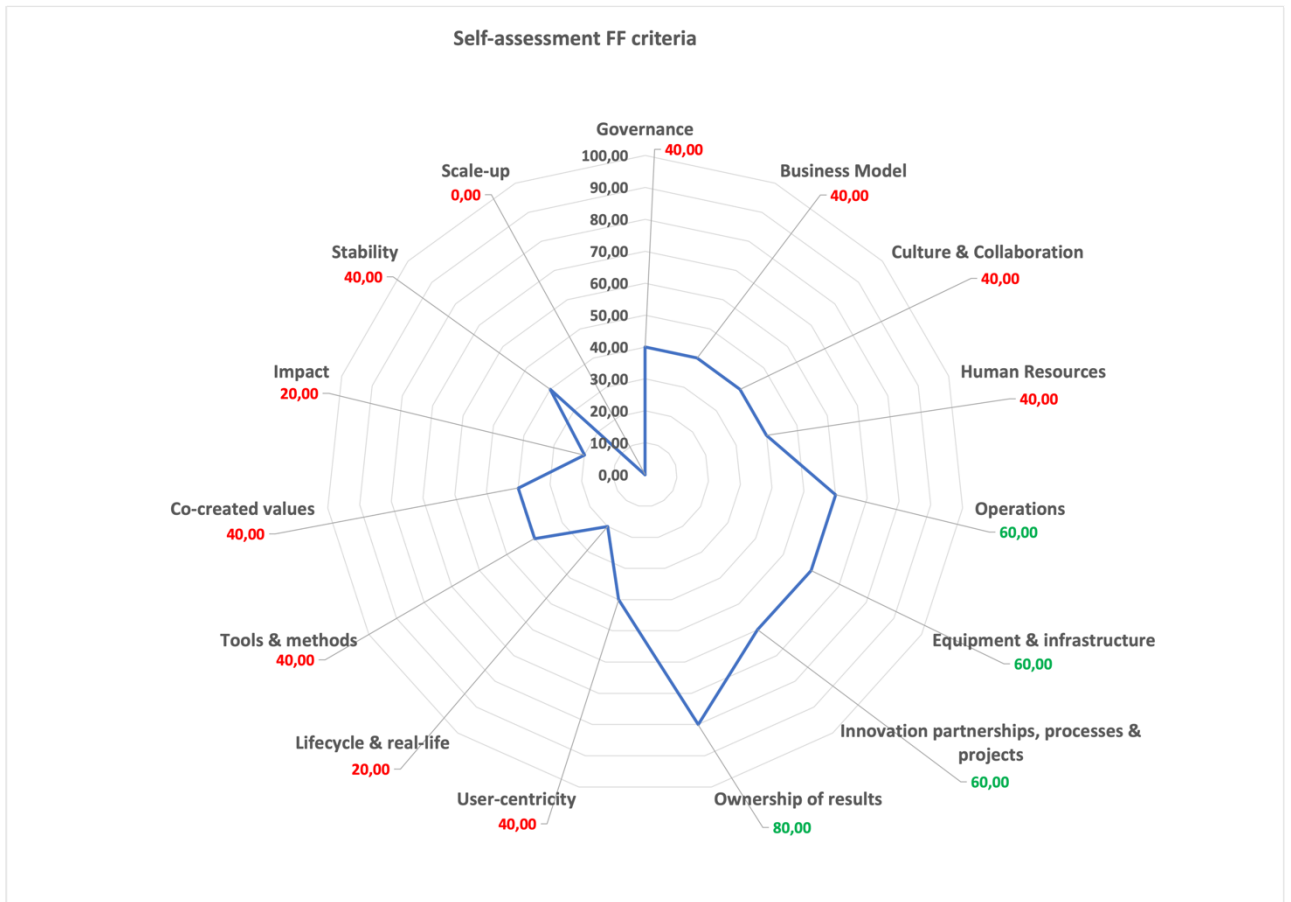


Figure 12. Visualization criteria self-assessment FF

7.3 Visualization qualitative review Living Lab chapters – FF

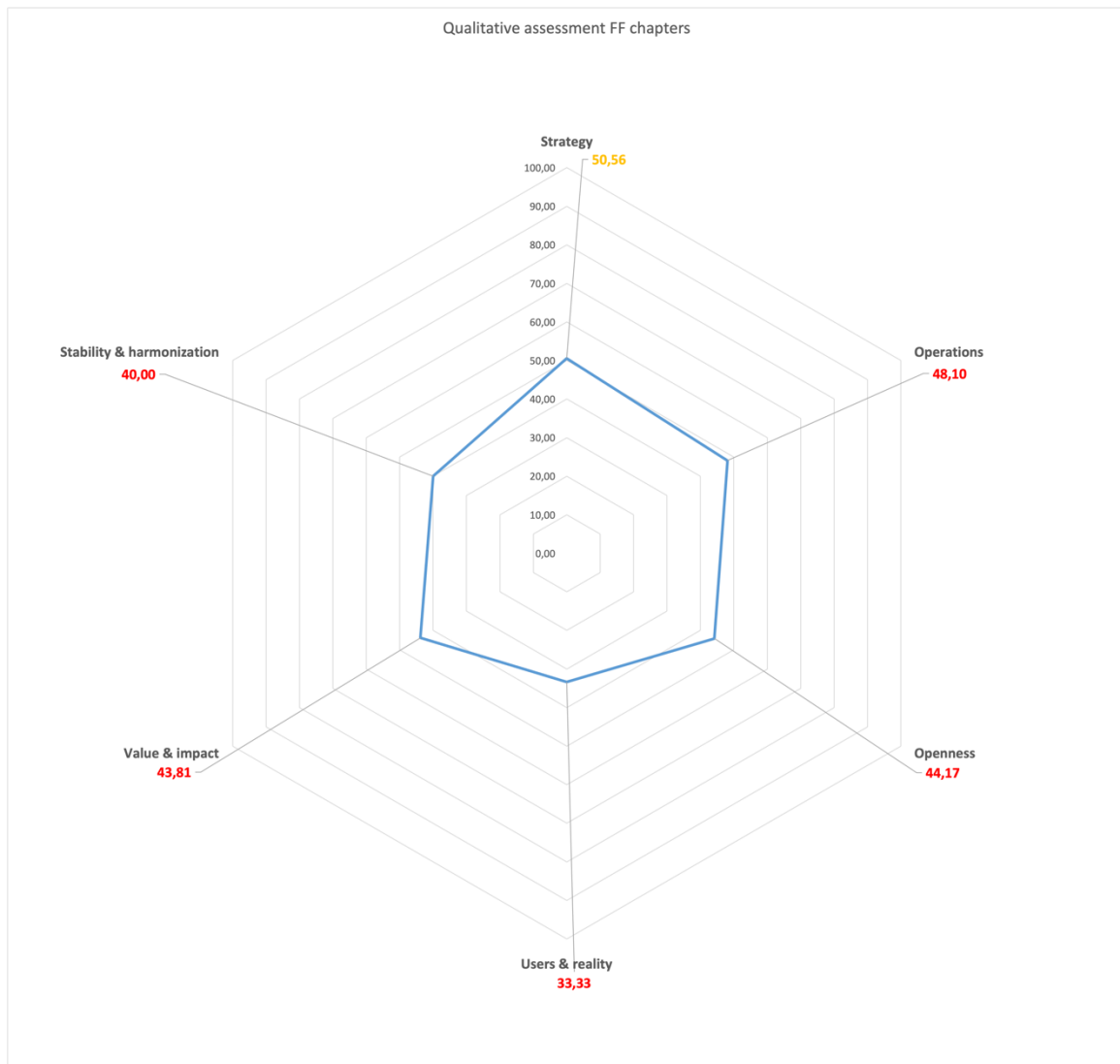


Figure 13. Visualization chapters qualitative assessment FF

7.4 Visualization qualitative review Living Lab criteria – FF

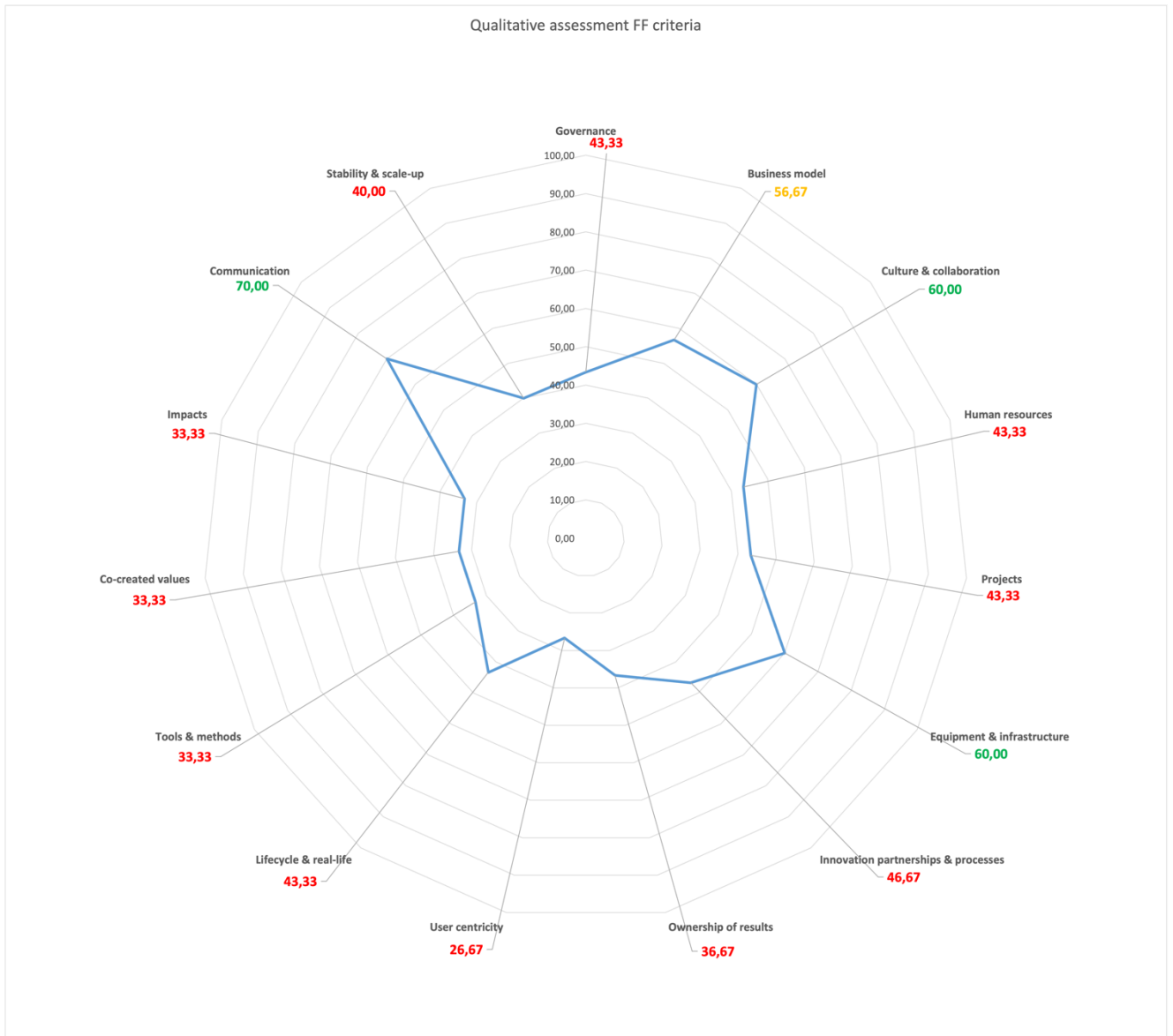


Figure 14. Visualization criteria qualitative assessment FF

7.5 Qualitative feedback from the Living Lab expert evaluators for each of the six general Living Lab chapters – FF

Three Living lab expert evaluators evaluated all submitted materials from Floating Farm and provided qualitative feedback for each of the six chapters of a sustainable Living Lab (§4.3) and about the territorial aspect of the Living Lab. Next to this they provided a general view on the current status of the Floating Farm.

Furthermore, Water Europe, the largest community of Water-Oriented Living Labs provided additional feedback concerning the water specific criterion, being the territorial aspect of the Living Lab. The WOLL assessment procedure is in line with the evaluation methods proposed by ENOLL. However, an additional factor is of crucial relevance for Water-Oriented Living Labs, which must be considered in this context: the candidates must be geographically situated within the territory and must tackle a territorial water challenge.

The consolidated feedback of the three Living Lab expert evaluators and Water Europe you can find here below.

General view on the current status of the Floating Farm

The FF is a very interesting and innovative testbed which is producing and researching at the same time. This initiative attracts a lot of visitors, which feeds to the innovative character, but remains a ‘showcase’.

The Living Lab expert evaluators suggested transforming the model towards co-creation and user involvement, as all the basics are there, but the knowhow seems to be missing.

Some of ENOLL’s capacity building program¹¹ or a deep dive into user co-creation and multi-stakeholder Living Lab value creation might provide insights to inform the next steps towards the transition of a highly relevant testbed towards a fully co-creative Living Lab organization.

The Living Lab expert evaluators invite the FF to use their recommendations to reapply to the ENOLL network in the future.

Generally, it looks as if submitted evaluation materials by the FF were rushed, completed by one person. Therefore, the needed details were mostly missing.

Strategy of the Floating Farm

From the provided info, the FF is operating as a very specific environment that is used as a **testbed** in different projects. This way, Floating Farm enables a real-life environment in a variety of projects which in turn offers the possibility of these projects to become ‘Living Lab’-projects.

However, from the information provided, the Floating Farm itself does not act as a Living Lab organization. The level of multi-stakeholder participation in the management and setting of strategic objectives was not clear.

¹¹ <https://openlivinglabdays.com/virtual-learning-lab/>.

Stakeholders and shareholder groups were not fully described so it was hard to ascertain whether they were businesses or user investments. Next to this, the management of the Floating farm seems to be very top down.

The business plan was not clearly described -it has three elements technology testing/provision, education, and production facility – with income derived from each of these, but not enough details were provided.

Next to this, the business model is balanced, but losses are reported (and covered by the shareholders).

To the Living Lab expert evaluators, it is strange that the ‘testbed’-capabilities of the Floating Farm seem to be unmonetized, besides the visitor incomes. These testbed capabilities holds more potential but would require the Floating Farm to be more involved in the technology demonstration projects.

There is evidence of good and long-standing collaborations with relevant national stakeholders for technology testing. More evidence could be presented regarding engagement with end user organizations (either consumers, educators, distributors).

Operations of the Floating Farm

The operations are clear and well-structured as it is a production facility that produces dairy and vegetables and receives the most income from selling this.

However, the operations and projects are not executed in a co-creative, Living Lab approach. The organizational chart was provided and 5 people are identified as contributing to the Living Lab, but multiple essential roles of a Living Lab team are not provided.

Although a project has been described, it is written up as a research project, not a co-created one. An interesting combination of farming activities and research into these farming practices, including new equipment, is present, but the involvement of a broader sample of end-users (which could be other farmers, other researchers, citizens) is not apparent in the information provided.

The equipment and infrastructure section seemed to omit a lot of the items relating to teaching, food production, retail, and Living Lab activities.

The Floating Farm operates as a research testbed and utilizes its own produce, and at the same time showcases this to the broader public, but no active co-creation was described.

Openness of the Floating Farm

The Floating Farm has multiple projects running with multiple partners, so it seems the organization acts well as an open innovation ecosystem on its own. However, very little description of open innovation processes or evidence of open innovation partnerships is presented by the Floating Farm.

The Living Lab expert evaluators assume that partners, and the large number of visitors and consumers are interested in the Floating Farm and its approach and would also be interested in being more involved in its organization/management/contributing ideas and research, but again not enough evidence has been provided to judge.

In terms of ownership of the results, all IP is claimed by Floating Farm and alternatively working with NDAs for specific projects is also a practice.

There is less proof of actual co-creation between the partners, and especially not with broader end-user groups, which limits the openness.

Users & Reality approach of the Floating Farm

No specific co-creation or user centric approach is used in the projects of Floating Farm. The companies involved interact with the research and operational staff, and there are also contacts with students, but in terms of actual multi-stakeholder co-creation, Floating Farms scores low and acts as a testbed and showcase to the broader public.

Although two examples were provided of real-world contexts, these were of researchers at the centre engaged in experimental trials. It was not clear how they were engaged in Living Lab activities, how their work was informed by user and stakeholder needs.

As these are part of a successful pipeline of projects this does illustrate high quality nature of the research and the investigations.

If the students are the users, then how does the Floating Farm support their work e.g. in terms of culture, organization, facilities, and how do the students contribute to making this a better place to work?

Basic user-centred approaches are used, but not enough information was provided to explain how, why, with whom and with what results were the methods co-created with users, did they rise above consultation and informing?

Value & Impact of the Floating Farm

Floating Farm delivers impact to the project partners involved and communicates about their own advances in terms of research and sustainable farming and operations.

The discussion of co-created values referred to a research partnership, with little explanation of the roles, manner of engagement or needs of each partner.

It is not clear how Living Lab approaches were used, or the sort of impact this project will have on the lives of the farmers or consumers.

The external communication figures are impressive. The material is well designed and demonstrates international reach.

They have a rather strong online presence. However, as they do not act as a co-creative, multi-stakeholder Living Lab, there is no real sign of co-created values nor is there of broader impact for all relevant (quadruple helix) stakeholders.

Within the Floating farm ecosystem, there is a lot of potential for impact on local students, visitors, and the community.

Stability & Scale-up of the Floating Farm

It is obvious that the Floating Farm is operational and has a firm direction it would like to take. However, insufficient details about their Living Lab approaches have been provided. It is not clear how the Floating Farm Living Lab will be expanded and where funding will come from to achieve stated objectives.

Some plans for the following year are included. These are exciting developments, but they need to be reframed as Living Lab approaches, e.g. showing how and where they will have impact, what the co-creation elements are, etc.

The Floating Farm operates in a good way and shows future ambitions and improvements. However, the focus is less on replication and learning by other actors, but the focus is on their own operational reality, their own research, and the links with the selected partners regarding these matters.

Territorial aspect of the Floating Farm

The FF does not provide a valid territorial aspect, because it is not tied to a challenge that reflects the needs of a specific territory. It is rather a modular approach to sustainability, which can definitely be expanded and exported to other places, and has good value. However, the way the Platform is structured is for definition outside of a specific location and hence outside of its challenges.

7.6 Recommendation for growth of FF by Living Lab expert evaluators

Since the evaluation report is also intended to support the Floating Farm to become a sustainable Living Lab beyond the scope of the WATER-MINING project, the Living Lab expert evaluators provided recommendations for each of the six chapters of a sustainable Living Lab.

The aim of these recommendations is to help the Floating Farm to further improve their current status and to guide them with specific actions for further growth.

Concerning the **Strategy** of the Floating Farm, the Living Lab expert evaluators recommend that:

- The Floating Farm should provide a clear strategy roadmap and governance model of the envisioned Floating Farm Living Lab, including who the wider stakeholder group is, and what role they have in setting objectives and the long-term strategy for the Floating Farm Living Lab.
- Completing a business model canvas could help the Floating Farm Living Lab to create a more solid Living Lab approach and offerings.
- The Floating Farm should better explain what the Floating Farm Living Lab is, and how it integrates with the rest of the Floating Farm organization.
- The Floating Farm also expresses the interest in receiving more subsidies. Acting more as a 'full' Living Lab partner, next to being a testbed within technology demonstration projects, could facilitate this.

Looking at the **Operations** of the Floating Farm, the Living Lab expert evaluators advice that the Floating Farm should:

- include a brief description of the people associated with the Floating Farm Living Lab, their background, activities, and amount of time dedicated to Living Lab activities.

- assign people to all the different needed roles within the Floating Farm Living Lab team.
- include a full list of equipment and infrastructure which is used on the Floating Farm, explaining how it is used to support co-creative Living Lab activities and describe their access rights to the equipment and infrastructure.
- focus more on co-creation and/or user-centred activities, and take a much more problem driven approach, including multiple stakeholder perspectives.

To further improve the **Openness** of the Floating Farm, the Living Lab expert evaluators suggest that it should:

- consider open innovation processes, projects, and partnerships, including working in an iterative and reflective way needs to be done.
- provide full details of IP and data management plans, and agreements with different stakeholders/funders to proof they are operating in an open way.

To grow further concerning the **User-centric and Real-life approach** of the Floating Farm, the Living Lab expert evaluators advocate that:

- more focus is needed on putting the users in the centre of their projects and activities. Adopting a Living Lab innovation lifecycle approach will help them in doing so.
- knowledge and skills about participatory tools and methods should be increased to involve/engage users and adopt them within all of their projects.

To enforce the **Value & Impact** of the Floating Farm, the Living Lab expert evaluators propose that Floating farm should:

- provide evidence of the number of quadruple helix engagements, supported by evidence materials, also describing the level of impact it has had.
- further develop and demonstrate their dissemination & communication plan.
- look at each of their project examples from the perspective of a Living Lab.
- discuss more about the educational opportunities, and the visits, and how these are used to discuss Living Lab principles.

Regarding the **Stability & Scale-up** of the Floating Farm, the Living Lab expert evaluators praise that the Floating Farm should integrate Living Lab approaches in their business plans and strategic objectives.

Finally, considering the **Territorial aspect** of the Floating Farm, the Living Lab expert evaluators, together with Water Europe, observe that the territorial aspect of the Floating Farm was not included in the business plan.

8 Comparison Plataforma Solar de Almeria and Floating Farm

This chapter delivers a comparison between the two WATER-MINING Living Labs, Plataforma Solar de Almeria and Floating Farm.

This comparison focuses on synergies and differences between the two Living Labs in general, but also in relation to each of the six general Living Lab chapters and in relation to the water specific criterion.

Finally, it provides recommendations for knowledge exchange between the two WATER-MINING Living Labs

8.1 Synergies and differences

Both Living Labs are very young Living Labs with a limited experience in running Living Lab operations. Despite this they have both developed a large and extensive ecosystem within their territories. Therefore, they both have the potential to become a sustainable Living Lab over time.

In order to become a sustainable Living Lab both Living Labs will have to invest in:

- strengthening their operational Living Lab teams to safeguard that at least one person is dedicated full-time dedicated to take care of all the Living Lab projects and activities.
- developing their own Living Lab services for clients to increase the balance of their revenue streams and not being solely dependent on project funding and /or private funding.
- exploring and implementing more advanced and diverse types of participatory tools and methods to interact with users/participants of their Living Lab activities.

Looking at the territorial aspect (water specific criterion) of both Living Labs the evaluation reports show that even when they are both active in the water nexus, their ecosystems are existing with different types of stakeholder groups.

This is the largest difference between both Living Labs.

While the PSA is focusing on the use of solar thermal energy, both for concentrated solar power production and desalination, FF is focusing on animal welfare, sustainable food production, changing landscape conditions and wastewater management.

Next to this, comparing both evaluation reports of the two WATER-MINING Living Labs, it becomes clear that for the moment PSA is more mature on the Living Lab scale than FF.

Table 2 and Table 3 here below provide an overview of these different maturity scores when it comes to the six general Living Lab chapter and to the fifteen general Living Lab criteria.

As a result, the Living Lab expert evaluators concluded that PSA is a Living Lab already, while FF still need to make the transition from testbed to Living Lab.

Table 2 - Comparison evaluation scores six Living Lab chapters

	Plataforma Solar de Almeria	Floating Farm
Strategy	77,78%	50,56%
Operations	67,62%	48,10%
Openness	68,83%	44,17%
Users & Reality	66,67%	33,33%
Value & Impact	51,90%	43,81%
Stability & Scale-up	60,00%	40,00%

Table 3 - Comparison evaluation scores Living Lab criteria

	Plataforma Solar de Almeria	Floating Farm
Governance	86,67%	43,33%
Business Model	66,67%	56,67%
Collaboration	73,33%	60,00%
Human Resources	60,00%	43,33%
Operations	73,33%	43,33%
Equipment & Infrastructure	73,33%	60,00%
Innovation partnerships, projects & processes	66,67%	46,67%
Ownership of Results	73,33%	36,67%
User centricity	73,33%	26,67%
Lifecycle & Real-Life	60,00%	43,33%
Tools & Methods	60,00%	33,33%
Co-Created Values	56,67%	33,33%
Impacts	43,33%	33,33%
Communication	53,33%	70,00%
Stability & Scale-up	60,00%	40,00%

8.2 Recommendations for knowledge exchange

Based on the identified synergies between the two Living Labs, but even more importantly, based on the differences, there are many topics on which both the WATER-MINING Living Labs can exchange knowledge.

Organizing recurrent catch-up meetings between both Living Labs will help both Living Labs to learn not only from each other's barriers and drivers in operating the Living Lab, but can also help them to identify possible other types of Living Lab services used by the other Living Lab.

Learning from each other's composition of local ecosystems can help both Living Labs to identify possible gaps in their own ecosystems and allows them to fill these gaps.

Exchanging experiences on how to interact with stakeholders can help both Living Labs to discover and explore other types of participatory tools and methods. Moreover, they could agree on experimenting with the same tools and/or methods to harmonize the outcomes of their activities. This could help them in the identification of possible approaches to be scaled-up to other organizations and/or Living Labs.

Informing each other about technological outcomes within their own Living Lab can help both Living Labs to possibly replicate technical solutions.

Exchanging practices on IP related issues can help both Living Labs to identify additional ways of dealing with the use, sharing and licensing of data and Intellectual Property rights.

Finally, Floating Farm can learn from Plataforma Solar de Almeria to further develop their Living lab approaches. Listening to the experiences of another water-oriented Living Lab will help Floating Farm to make the transition from testbed to a real Living Lab.

9 Next steps

The results of the evaluations of the two WATER-MINING Living Labs will serve as a basis for further mentoring activities with the Living Labs for the remaining period of the WATER-MINING project. During these mentoring activities the partners from WP 2 will support PSA and FF in strengthening their less mature aspects of a sustainable Living Lab to help them grow.

Next to this, the evaluation reports of this deliverable, since they completely meet the high-quality assessment standards of the ENOLL network, are valid to be used as assessment materials within the ENOLL application process.

Based on the outcomes, currently Plataforma Solar de Almeria can be accepted as a member of the ENOLL network, while Floating Farm can reapply in the future, after making the transition from testbed to a real Living Lab.

Therefore, PSA can use the evaluation report to start the application process to the ENOLL network.

Finally, the outcomes of this deliverable will also serve as the basis for the replicability study related to the two WATER-MINING Living Labs.

Within this replicability study, the results of this deliverable will be used to identify best practices of the two WATER-MINING Living Labs in relation to processes, activities, technical solutions, and infrastructures developed which could be replicated by other organizations and/or Living Labs across Europe.

The identified best practices will be presented to multiple water-oriented Living Labs from the ENOLL Network and the Water Europe community. These external Living Labs will identify possible boundaries & opportunities for replication of the best practices of the two WATER-MINING Living Labs.

The outcomes of this process will be translated into guidelines for replication of the best practices. Deliverable D2.5 - Replicability study will encompass these results.

10 References

Alan Wang, A; Feng Yi Change, Siavash Yousefi, Beatrice Li, Brad Campbell, and Arsalan Heydarian. 2018. The Hitchhikers' Guide to Successful Living Lab Operations. In Proceedings of (IoTDI '23). ACM, New York, NY, USA, 11 pages

Habibipour, Abdolrasoul. (2018). Living Lab Research: A state-of-the-art review and steps towards a research agenda

Krassimira Paskaleva, Ian Cooper, are Living Labs effective? Exploring the evidence, Technovation, Volume 106, 2021,102311, ISSN 0166-4972, <https://doi.org/10.1016/j.technovation.2021.102311>.

Santonen, T.; Julin, M.; Salmi, A. & Leskinen, J. (2020) Understanding the underlying factors of Living Lab business model. In Bitran, Iain; Conn, Steffen; Gernreich, Chris; Heber, Michelle; Huizingh, K.R.E.; Kokshagina, Olga; Torkkeli, Marko (Eds.) Proceedings of the 2020 ISPIM Innovation Conference (Virtual) Event "Innovating in Times of Crisis" held on 7 to 10 June 2020. International Society for Professional Innovation Management.

Sasic Kalagasidis, A., Hagy, S., Marx, C. (2017). The HSB Living Lab harmonization cube. Informes de la Construcción, 69(548): 224-12. [Http://dx.doi.org/10.3989/id.55038](http://dx.doi.org/10.3989/id.55038)

Schuurman, D. (2015). Bridging the gap between Open and user Innovation? Exploring the value of Living Labs to structure user contribution and manage distributed innovation (Doctoral dissertation, Ghent university). <https://biblio.ugent.be/publication/5931264/file/5931265.pdf>

Ståhlbröst, Anna. (2012). A Set of Key-Principles to Assess the Impact of Living Labs. International Journal of Product Development. 17. 60-75. 10.1504/IJPD.2012.051154.

Zipfel N, Horreh B, Hulshof CTJ, et al. The relationship between the Living Lab approach and successful implementation of healthcare innovations: an integrative review. BMJ Open 2022;12: e058630. doi:10.1136/bmjopen-2021-058630

Vervoort, K. Konstantinidis, E., Santonen, T., Petsani, D., Servais, D., De Boer, D., Spagnoli, F., Onur, O. Bertolin, J., Trousse, B., Desole, M. & Bamidis, P. (2022), Harmonizing the evaluation of Living Labs: a standardized evaluation framework, Proceedings of the XXXIII ISPIM Innovation Conference, Copenhagen, 2022

<https://www.enoll.org>

<https://watereurope.eu/water-oriented-living-labs/>

<https://vitalise.project.eu>

<https://www.betterevaluation.org/methods-approaches/approaches/utilisation-focused-evaluation>

<https://enoll.org/wp-content/uploads/2022/12/application-guidelines-wave-2023-13122022.pdf>

<https://www.sogolytics.com>

<https://openlivinglabdays.com/virtual-learning-lab/>.

Annexes

Questions self-assessment WATER-MINING

This document provides you with an **overview of all the questions and answering possibilities** of the self-assessment tool of WATER-MINING.

We strongly advise you to **go through all the questions** in this document to make sure you understand the questions in the self-assessment tool **in advance** and **to make sure you collect all the needed information before starting to complete the tool online**.

The tool is based on the harmonized evaluation framework developed by ENoLL and covers **6 chapters and 15 criteria of sustainable Living Labs**.

The tool allows you to self-assess the sustainability and maturity of your Living Lab.

If you have questions around this document, you can always reach us via koen.vervoort@enoll.org.

By completing the self-assessment tool, you agree to your details being held electronically by the European Network of Living Labs.

ENoLL will process your personal data on the legal basis of Art. 6, case b) of GDPR (General Data Protection Regulation).

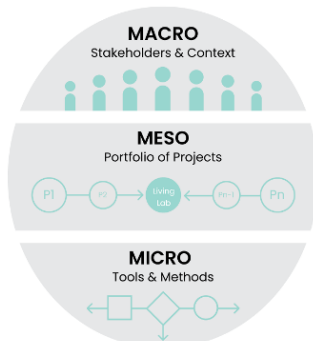
Your data will be processed in compliance with regulation (EU) 2016/679 of the European Parliament and of the council of 27 April 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (GDPR) and Law 2018/40581 of 30 July 2018 on protection of natural persons with regard to the processing of personal data.

Agreeing to this statement allow ENoLL to contact you in relation to this self-assessment if necessary.

You can exercise the right of access, rectification, erasure, restriction of processing, portability, and objection, by sending an e-mail to privacy@enoll.org.

This page provides you with useful information about the Living Lab concept, levels, and evaluation framework. Reading it will help you to answer upcoming questions better.

A Living Lab is made up of 3 levels, as described by [Schuurman](#) in 2015.



- On the **macro level**, a Living Lab is a public-private-people partnership consisting of different stakeholders, organized to carry out Living Lab research and Living Lab projects. We refer to this level as **the Living Lab constellation**.
- On the **meso level**, we discern the Living Lab innovation projects that are being carried out within the Living Lab constellation. We refer to this as **Living Lab project(s)**.
- The **(research) activities** that are deployed in a Living Lab we label as **micro level** activities in Living Labs. This consists of **a specific Living Lab methodology** to cultivate user-led insights and surface tacit, experiential, and domain-based knowledge such that it can be further codified and communicated.

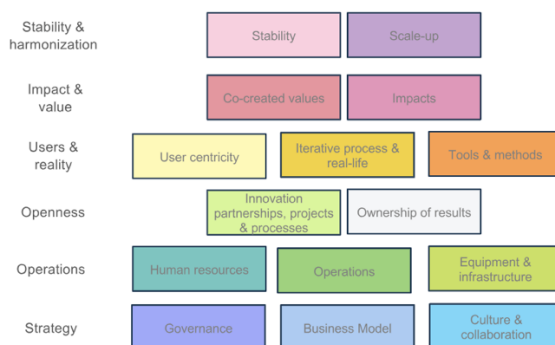
Some Living Labs exist where the Living Lab constellation is set up for only one innovation project, which merges the macro and meso level, but we regard these ‘Living Lab as a project’ initiatives as problematic in terms of sustainability and sub-optimal in terms of added value being generated for the actors involved.

This self-assessment focuses on 6 main building blocks and 15 criteria of sustainable Living Labs across these 3 levels of a Living Lab.

More information about this harmonized evaluation framework can be found [here](#).

Below, you may find a graphical overview of these blocks and criteria coming next.

Every main block will start with a short description to increase your understanding.



General information organization

First, we'd like to ask some general questions about your organization and yourself.

What is your full name?

What is your email address? *We will use this email address to send you the results.*

What is the name of your organization?

In which country is your organization located?

To which sector of the quadruple helix is your organization affiliated?

Select one option

Public administration (e.g., city authorities, ministries, ...)

Private sector (e.g., company, start-up, SME...)

Academia (e.g., universities, research centers...)

Society (e.g., NGOs, community centers...)

Other, namely:

Does your organization host a Living Lab?

Yes/No

If no go to the next page

What is the name of your Living Lab?

In which year was your Living Lab founded?

In which sectors is your Living Lab active?

Multiple answers are possible

Agriculture and Agri-food

Circular economy

Culture, creativity, and media

Education and/or vocational training

Emerging technologies (e.g. AI, AI/VR...)

Energy

Environment and climate change

Health and Well Being

Industries and Manufacturing

Mobility

Policies

Regulatory learning

Rural

Smart cities and regions

SME and start-ups

Social innovation and inclusion

Urban

Water (blue economy)

Zero pollution and decarbonization

I do not know

Other, namely

Strategy

This first chapter addresses long-term aspects of a Living Lab, such as *multi-stakeholder participation*, the *orchestration* role of the Living Lab, *collaboration* strategies, and the *business model*. Three criteria are used to assess this part

Governance, including

- *a well-defined and shared vision and mission for the Living Lab, based on real identified needs of quadruple helix actors,*
- *involvement of actors of the quadruple helix on a strategic level*
- *clearly defined roles and responsibilities within the Living Lab governance team*
- *a clear strategy roadmap, including the expected impacts of the Living Lab strategy and the Living Lab projects*

Business Model including

- *a view on the business plan of the Living Lab*
- *a well-defined and described service portfolio for various phases of innovation and collaboration processes*

Culture and collaboration including

- *proof of connections/interest to connect with external (regional/national/ international) innovation ecosystems,*
- *smart and adaptive cooperation/collaboration within the Living Lab design to build trust,*
- *quality of the internal communication processes,*
- *channels and tools within the Living Lab to build trust*

Which different types of stakeholder groups of the quadruple helix are present in the ecosystem of your Living Lab?

Multiple choice

Public sector

Local government (e.g., city authorities)
 Regional government (e.g., provinces/states)
 National government (e.g., ministries)
 International government (e.g., EU/UN)
 Funding agencies (national/international)
 Funded organizations (e.g., port authorities)

Private sector

Industry and large private companies
 Start-ups and SME's
 Angel investors/Accelerator program owners
 Sector organizations and associations

Academia

Universities
 Schools
 Research centers
 Students
 Science communication centers

Society

NGO's
 Think Tanks
 Community centers
 Communities of citizens/users
 Open innovation labs/arrangements (e.g., fablab, citizen science...)
 Other, namely:
 I don't know

To what degree are the strategic parts shown here below implemented/planned for in your Living Lab?
In some cases, these strategic parts are aligned with the strategic roadmap of the organization hosting it (e.g., university Living Labs).

Something is **in place** when it is fully implemented/operational within your organization/Living Lab

Something is **planned for** if it is still under development (this includes partly implemented processes)

Something is **currently missing** if it is not implemented/operational within your organization/Living Lab at this moment

	In place	Planned for	Currently missing	I don't know
A shared vision/mission, <i>based on the input of a balanced and diversified group of stakeholders</i>				
A governance structure (e.g., steering committee, management structure...)				
A strategic roadmap <i>describing the envisioned projects and their expected impacts</i>				
Strategic decision-making processes (<i>rules on the governance level about the ways and frequency of decision taking, and the responsibilities of the involved partners</i>)				
Partner agreements (<i>signed documents describing the responsibilities and accountabilities of the involved partners</i>)				
A Business Plan/Model, <i>including key activities, revenue streams and cost structure</i>				
Living Lab services (<i>for customers</i>) covering (all) different phases of the innovation cycle (e.g., the Living Lab integrative process)				
An operational Living Lab team (<i>executing Living Lab projects and activities</i>)				
An internal monitoring framework <i>assessing the strategic parts of the Living Lab</i>				
An external impact assessment framework <i>assessing the impacts the Living Lab is generating</i>				
Living Lab infrastructures (e.g., offices, co-creation spaces, testing facilities...)				
Living Lab equipment (hard- and software) (e.g., co-creation materials, computers, wearables, interaction software, polling/survey software...)				

What types of stakeholders are actively involved in the development of the vision and mission of the Living Lab and the governance structure of the Living Lab?

Stakeholders are actively involved in the mission/vision if they actively participated in the creation of it (e.g., co-creation workshops, community of practice meeting...)

Stakeholders are actively involved in the governance structure if they are actively participating in the strategic decision-making processes of the Living Lab (e.g., management meetings, advisory board...)

Multiple answers are possible

	Involvement in the shared vision/mission	Involvement in the governance structure	A partner agreement is signed with them
<p>Carried forward answers from Q1</p> <p>Public sector Local government (e.g., city authorities) Regional government (e.g., provinces/states) National government (e.g., ministries) International government (e.g., EU/UN) Funding agencies (national/international) Funded organizations (e.g., port authorities)</p> <p>Private sector Industry and large private companies Start-ups and SME's Angel investors/Accelerator program owners Sector organizations and associations</p> <p>Academia Universities Schools Research centers Students Science communication centers</p> <p>Society NGO's Think Tanks Community centers Communities of citizens/users Open innovation labs/arrangements (e.g., fablab, citizen science...)</p>			

How frequently does the managing group/governance team of the Living Lab organizes meetings to monitor the progress of the Living Lab and make strategic decisions?

<1X/year	3x/year	monthly
1x/year	4x/year	more than monthly
2x/year	6x/year	I don't know

How frequently does the Living Lab **internally** share strategic decisions, information about upcoming actions, and results of past projects/activities, beyond the scope of an individual Living Lab project, with their strategic partners and Living Lab staff?

We are looking for the frequency of sharing beyond the information shared in the meetings of the managing group and/or governance team.

<1X/year	3x/year	monthly
1x/year	4x/year	more than monthly
2x/year	6x/year	I don't know

A business model of a Living Lab describes the way and the key activities via which the Living Lab offers solutions and services to solve problems of their stakeholders, customers and users.

Next to this, it describes who are the main stakeholder target groups, customers and users of the Living Lab.

Finally, it determines the necessary resources to do so and describes the costs and revenues of the Living Lab.

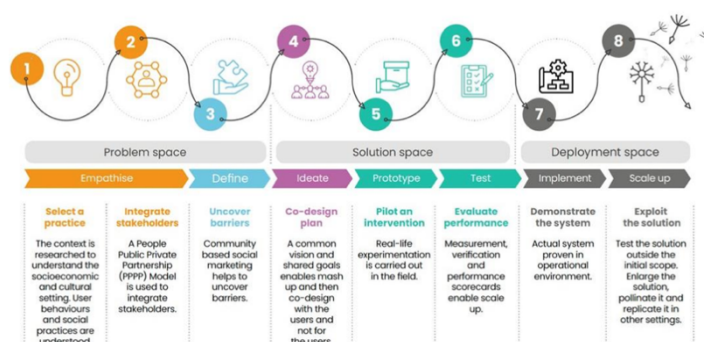
Which of the following elements are currently present in the business model of your Living Lab?

Multiple answer are possible

- Value proposition(s) (solutions and services to solve problems)
- Key activities (overview of activities performed by the Living Lab, e.g., co-creation workshops, events, survey...)
- Customer segments (overview of possible clients paying for the services/solutions of the Living Lab)
- User segments (overview of groups of people needed to be involved in Living Lab activities)
- Key resources (overview of the necessary items needed to run the Living Lab, e.g., co-creation space, software...)
- Cost structure (which expenses need to be calculated for to run the Living Lab, e.g., personnel, office space...)
- Revenue streams (how will the Living Lab earn money, e.g., paid Living Lab services like workshop facilitation...)
- Other, namely:
- I don't know

Living Labs use so-called Living Lab innovation cycles to run their Living Lab projects. Two of the most common used methodologies in Living Labs are the innovation lifecycle approach and the Living Lab integrative process.

Within the innovation lifecycle approach four phases are identified: exploration, co-creation, experimentation, and evaluation.
 The Living Lab integrative process uses 3 spaces (problem-solution-deployment), divided in 8 steps like shown in the picture here below



Living Lab services are mostly related to one or more of these identified innovation phases and/or steps. Some common services are:

- testing and validation services (e.g., end-user engagement, rapid prototyping, experimentation, usability, real-life testing...)
- innovation network orchestration (e.g., community and network building, stakeholder mapping, stakeholder events...)
- Living Lab project planning and management (Living Lab as a service)
- co-creation services (e.g., idea selection, facilitation workshops, focus groups, co-design...)
- capacity building services (e.g., trainings, mentoring, awareness raising...)
- advisory services (e.g., analytical/research services, benchmarking, foresight, regulation support...)
- market and sales support (e.g., deployment services, scaling up solutions to other Living Labs...)
- infrastructure and data management services (e.g., equipment and facility rental, Living Lab as research/technology infrastructure)

For which of the different steps of the Living Lab innovation cycle is your Living Lab offering Living Lab services to its customers?

In this self-assessment, we use the Living Lab integrative process to match the Living Lab services since this process is the most detailed approach.

Multiple answers are possible.

- Practice selection (e.g., idea selection, visioning/missioning exercises)
- Integration of stakeholders (e.g., community and network building, stakeholder mapping)
- Identification of barriers (e.g., analytical/research services, focus groups)
- Co-creation/co-design of solutions
- Piloting a solution (e.g., rapid prototyping, experimentation, usability, real-life testing)
- Evaluating a solution (e.g., end-user engagement, analytical/research services)
- Demonstrating a solution (e.g., equipment and facility rental, Living Lab as research/technology infrastructure)
- Exploiting a solution (e.g., deployment services, scaling up to other Living Labs)
- Other, namely:
- None of the above
- I don't know

Good relationships between the Living Lab and its internal partners and external customers, suppliers, and other stakeholders (networks) are crucial for the viability of a Living Lab.

Internal business management processes are describing the ways the Living Lab interacts and communicates with its internal partners and Living Lab team staff (e.g., minutes of governance meetings, frequency of team meetings...)

External business management processes are describing the way the Living Lab interacts with (possible) clients and (possible) new partners of the Living Lab. This is not the same as the community management processes with the users of the Living Lab (e.g., offering procedures of the Living Lab to the client, intake processes of new partners...)

Ethics management processes are describing the way the Living Lab ensures working in an ethical way.

Intellectual property (IP) management processes are describing the way the Living Lab deals with the ownership of results of Living Lab projects/products/services/solutions/...

Which types of management processes are in place in your Living Lab?

Something is **in place** when it is fully implemented/operational within your organization/Living Lab

Something is **planned for** if it is still under development (this includes partly implemented processes)

Something is **currently missing** if it is not implemented/operational within your organization/Living Lab at this moment

Multiple answers are possible.

	In place	Planned for	Currently missing	I don't know
Internal business management strategy and processes (existing partners and Living Lab team staff)				
External business management strategy and processes (clients and new possible partners of the Living Lab)				
Ethics management				
Intellectual property (IP) management				

With how many individual Living Labs or other innovation networks has your Living Lab been actively collaborating over the last 3 years on a local, regional, national, or international scale beyond the scope of one individual Living Lab project?

Local collaboration is collaboration within a city/municipality

Regional collaboration is collaboration within a province/region/state (e.g. Flanders, Catalunya, Normandy)

National collaboration is collaboration within one country

International collaboration is collaboration beyond borders of one country

	0	1	2	3	4	5	+5	+10
Locally								
Regionally								
Nationally								
Internationally								

I don't know

Operations

The second chapter of this self-assessment is looking at the way the Living Lab manages its operations, including human resources and necessary equipment & infrastructure of the Living Lab. Three evaluation criteria are used to assess this part:

Human resources: including

- availability of qualified staff
- assignment of qualified staff to different roles and responsibilities

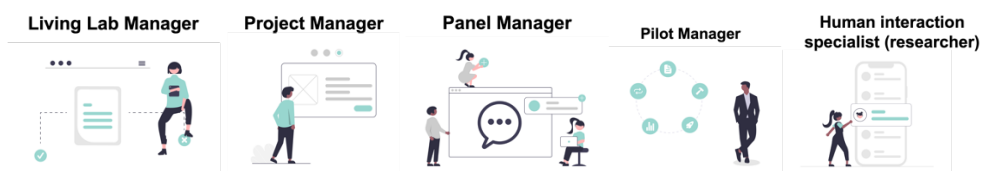
Operations: including

- running and finished Living Lab projects
- monitoring processes for operational aspects of the Living Lab
- open innovation project management
- status of the Living Lab in general

Equipment and infrastructure: including

- allocation of necessary Living Lab equipment and infrastructures (e.g., software, hardware, spaces) to the Living Lab team
- availability of necessary Living Lab equipment and infrastructures (e.g., software, hardware, spaces) to the Living Lab team, indicated in time (from continuous to rarely)

When running or setting up a Living Lab at the operational level it is important to define and assign different roles within the Living Lab. The most common roles in an operational Living Lab team are:



- **Living Lab manager**, focusing on the macro-level of the Living Lab by initiating and monitoring the Living Lab strategy via the development of Living Lab projects for their utilizers, while managing the day-by-day activities of the Living Lab.
- **Project manager(s)**, managing entire individual Living Lab projects with a defined scope (meso-level).
- **Panel manager(s)**, planning and coordinating the interaction with a panel of users, citizens and other actors involved in Living Lab activities, by identifying and recruiting these users, while interacting with them and safeguarding the user-centricity of the Living Lab methodologies and activities.
- **Pilot manager(s)**, facilitating the implementation and testing of innovative solutions within the real-life contexts of the users of a Living Lab project.
- **Researcher(s)**, also called Human Interaction specialist(s), designing, and planning the innovation process in an integrative way, while analysing the results of user-centred interaction activities.

Which internal roles, expressed in allocated working time (FTE), have been allocated to run the Living Lab operations?

Measuring the assigned time to the different roles of a functioning Living Lab team is an indicator about how well the Living Lab is structured and organized. We ask for allocated time because a monetary figure would be too hard to compare between different countries/regions.

FTE stands for full time equivalent. It's a measurement used to figure out the number of full-time hours worked by employees. If your organization considers 40 hours to be a full-time workweek, then an employee working 40 hours per week would have an FTE of 1, a part-time employee working only 20 hours per week would have an FTE of 0.5

0/0,5/1/1,5/2/2,5/3/3,5/4/More than 4
Living Lab Manager
Researcher (human interaction specialist)
Panel and/or community manager
Pilot manager
Project manager
Other, namely:

The meso-level of a Living Lab are the Living Lab projects that the Living Lab is running and/or participating in. These projects use an open innovation approach, usually based on a Living Lab methodology (e.g., the Living Lab integrative process, Living Lab innovation lifecycle).

How many Living Lab projects has your Living Lab completed over the last 3 years? *If your Living Lab is younger than 3 years, please count all finished Living Lab projects since the foundation of your Living Lab.*
 0/1/2/3/4/5/6/7/8/9/10/More than 10/I don't know

How much time (in person months) was allocated to running and/or participating in these projects? *One PM equals one employee working full time on the project for one month.*
If your Living Lab is younger than 3 years, please count all finished Living Lab projects since the foundation of your Living Lab.
Select one option.

0 - <1PM - 1 to 3PM - 3 to 6 PM - 6 to 12 PM - More than 12 PM - More than 24 PM - More than 36PM - I don't know

How frequently are the following internal components of the Living Lab followed up by the managing team/governance team through self-monitoring processes?

Measuring the frequency of monitoring is an indicator of how close the progress and development of the Living Lab is followed up by the involved partners, allowing them to adjust strategies and processes more closely.

	Not being monitored	<1x/year	1x/year	2X/year	3x/year	4x/year	6x/year	monthly	> monthly
Strategic objectives and goals									
Stakeholders involved									
Business Model									
Financial status									
Service portfolio of the Living Lab									
Human Resources (LL team)									
Equipment and Infrastructure									
Project outcomes									
Knowledge sharing									
Capacity building									
Iterative and reflective approach									
Ethical approach									

How frequently are the following equipment and infrastructure of your Living Lab accessible to the Living Lab team to be used?

The purpose of this question is to understand how flexible the operational Living Lab team can use the necessary equipment and infrastructures to run Living Lab activities and projects. Logically, it will be much more difficult to run Living Lab projects and/or activities if for network spaces like co-creation rooms or testing facilities like fab lab spaces are only very irregularly available to be used by the team.

	Not available/not in place	Irregularly (<50%)	Regularly (50-90%)	Continuously (>90%)
Office spaces				
Testing facilities (e.g., fab lab space, demonstration space...)				
Network spaces (e.g., spaces for co-creation, events...)				
Co-creation materials (e.g., flipcharts/office supplies, LEGO...)				
Communication and interaction platform/tools (e.g., Mailchimp, Teams, Slack...)				
Co-creation platforms/tools (e.g., Miro, Mentimeter...)				
Co-creation/experimentation devices (e.g., smartphones, iPads, computers, wearables...)				

Openness

This third chapter investigates the openness of the Living Lab by focusing on the *processes, partnerships, feedback, and IP protection*. Two evaluation criteria are used to assess this part:

Innovation partnerships, projects, and processes, including

- reflective and iterative approach of the Living Lab
- ethical approach of the Living Lab
- openness towards new partners and investors
- presence of the necessary transparent data agreements between the Living Lab and its partners, stakeholders, and users
- level of transparency of the Living Lab

Ownership of results, including

- feedback protection
- shared vs. formal ownership
- intellectual property (IP) processes

How is your Living Lab safeguarding a **reflective and iterative approach** to (transdisciplinary) collaboration?

Multiple answers are possible.

The Living Lab is using Living Lab iterative processes (co-creation, exploration, experimentation, evaluation) throughout the execution of Living Lab projects

Innovations are iterated based on feedback from stakeholders in the previous step(s) of the innovation cycle.

The tools and methods used by the Living Lab stimulate feedback capturing and allow customers to develop their innovations in an iterative way.

Lessons learned are captured throughout the execution of Living Lab projects in a reflective way

The research of the Living Lab is open to what is happening in the real-life context and to adjust their processes accordingly.

Reflexive monitoring is one of the key principles of the Living Lab

The Living Lab has the capability to adjust its roles and processes in response to changing circumstances.

Other, namely

None of the above

How is your Living Lab safeguarding an **ethical approach** to (transdisciplinary) collaboration?

Multiple answers are possible.

The Living Lab uses ethical assessments before they participate in projects

The Living Lab has a code of conduct which defines participation, information sharing, inclusiveness and data privacy and follows ethical principles of experimental and participatory research.

The Living Lab has appointed a data protection officer

The Living Lab has made available to the public a privacy policy

The Living Lab has an ethics committee that oversees and approves the activities and methodologies of its projects.

The Living Lab always uses a data management plan in its projects

The Living Lab has dedicated informed consent procedures in its projects

The Living Lab ethical uses transparency, equality and inclusion in the selection of Living Lab stakeholders (e.g., vulnerable groups of users)

Other, namely:

None of the above

How is your Living Lab implementing the required processes regarding **the use, sharing and licensing of data and IP** of collaborative outcomes?

Multiple answers are possible.

The Living Lab has collaborative agreements in place laying down IP rules, addressing aspects such as ownership, protection, and exploitation of project results prior to the initiation of a project.

The Living Lab signs confidentially agreements to protect sensitive information regarding IP or personal data

The Living Lab ensures a fair distribution of benefits and burden

The Living Lab signs user agreements that include the privacy policy and non-disclosure clauses (when applicable) with every individual user of its Living Lab projects

The Living Lab provides details of the technical and organizational measures to safeguard the rights and freedoms of the participants

The Living Lab provides details of the technical and organizational measures to safeguard the personal data of the participants

The Living Lab supports the creation of open source and/or common licenses

Other, namely:

None of the above

Which of the following are integrated into the user agreements your Living Lab is signing with every individual user of its projects?

Multiple answers are possible.

Project information (purpose, timeline, expectations...)

Inclusion and exclusion criteria

Privacy protection (including data)

Feedback protection of participant's (explanations about what will be done/not done with the feedback)

Intellectual property agreements

User rights and duties

Risk assessments of technologies used

Liabilities protection (e.g., insurances)

Other, namely:

None of the above

Users and reality

This fourth chapter considers the ways in which *collaboration with users takes place* and the levels of engagement and participation, by focusing on the implementation of an *iterative Living Lab process in real life contexts* and investigating the quality of used *tools and methods*. Three evaluation criteria are used to assess this part:

User-centricity of the user and stakeholder engagement approach, including

- description and intensity of the user participation
- user impact on the innovation process
- amount of actively involved users in the Living Lab activities

Quality of the iterative Living Lab processes in real-life contexts, including

- adoption of an iterative Living Lab methodology in the user engagement approach
- involvement of users in real life contexts (e.g., at home, work, in the public space)

Appropriateness of the participatory tools and methods, including

- engagement strategies to match evolving needs of users

- range of used tools and methods
- quality and innovativeness of tools and methods to involve users in the different steps of the iterative Living Lab process

Which different types of stakeholders from your ecosystem are participating as users in Living Lab projects and/or activities over the last 3 years? *If your Living Lab is younger than 3 years, please count all finished Living Lab projects since the foundation of your Living Lab.*

Multiple choice*

Public sector

Local government (e.g., city authorities)

Regional government (e.g., provinces/states)

National government (e.g., ministries)

International government (e.g., EU/UN)

Funding agencies (national/international)

Funded organizations (e.g., port authorities)

Private sector

Industry and large private companies

Start-ups and SME's

Angel investors/Accelerator program owners

Sector organizations and associations

Academia

Universities

Schools

Research centers

Students

Science communication centers

Society

NGO's

Think Tanks

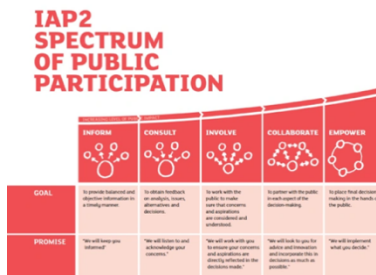
Community centers

Communities of citizens/users

Open innovation labs/arrangements (e.g., fablab, citizen science...)

The international association for public participation (IAP2) has developed the spectrum of public participation to define the role of users/participants in participation processes. This spectrum has become an international standard and describes five general modes of participation.

1. **Inform:** to provide users/participants with balanced and objective information to assist them in understanding the problem, alternatives and/or solutions
2. **Consult:** to obtain users/participants feedback or analysis, alternatives and/or decision
3. **Involve:** to work directly with users/participants throughout the process to ensure that their concerns and aspirations are consistently understood and considered
4. **Collaborate:** to partner with users/participants in each aspect of the decision including the development of alternatives and the identification of the preferred solution
5. **Empower:** to place final decision-making in the hands of user/participants



In general, within your Living Lab, to what extent can users/participants in your Living Lab projects exert influence on the different phases of the Living Lab innovation cycle?

	Not involved	Inform	Consult	Involve	Collaborate	Empower
Problem identification						
Stakeholder integration						
Solution design						
Solution development						
Testing solutions						
Evaluating solutions						
Demonstrating solutions						
Implementing solutions						

How regularly does your organization/Living Lab involve users/participants in their real-life context within the current Living Lab projects of your Living Lab?
Real-life contexts are contexts where users/participants spend the vast majority of their time physically/virtually in relation to the innovation project (e.g., the real-life context of employees of a company are the offices of the company where they work on a daily base; the real-life context of students is the classroom they spend most of their time in)

	Not at all	Occasionally (<25% of all activities)	Irregularly (25-49% of all project activities/steps)	Regularly (50-75% of all project activities/steps)	Almost always (>75% of all project activities/steps)
Problem identification					
Stakeholder integration					
Solution design					
Solution development					
Testing solutions					

Evaluating solutions					
Demonstrating solutions					
Implementing solutions					

I do not know

Which of the participatory tools and methods displayed here below are used by your organization/Living Lab?

Multiple choice*

- | | |
|------------------------|------------------------|
| Focus groups | Forcefield analysis |
| Interviews | Design charette |
| Brainstorms | World cafe |
| Hackathon | Vision factory |
| Probing | Role-play |
| Nudging | Songs |
| LEGO Serious play | Power interest matrix |
| Survey | Problem tree |
| Image theatre | Future workshop |
| Decision theatre | User events |
| Drawings | Photo walk |
| (Visual) Mind maps | Usability testing |
| (User)Diaries/journals | Dotmocracy |
| Stakeholder journeys | Participatory mappings |
| Thought shower | Citizens jury |
| Serious games | Gender Jumble |
| Talking walls | Other, namely |
| Idea cards | None of the above |

In which phases of the Living Lab innovation cycle is your Living Lab/organization using these participatory tools and methods?

	Problem identification / stakeholder integration / co-design/ co-creation/ experimentation/evaluation/demonstration/not used
carried forward answers previous question	

Impact and Value

This section assesses the level of participation in the development of *co-created values* (e.g., knowledge sharing, capacity building, network building) and even more importantly who they have been designed for. Furthermore, it investigates how the Living Lab is tracking impacts generated by the Living Lab. Two criteria are used to assess this part:

Co-created values, including

- user and stakeholder satisfaction (e.g., influence on the process, capacity building)
- degree of knowledge exchange among Living Lab stakeholders (e.g. community platform, knowledge hub)
- academic validation for researchers (e.g., publications)
- capacity building for/by network actors (e.g., learning materials, trainings)

Impact of the Living Lab, including

- monitoring of impacts
- societal impact (e.g., behavioral change, inclusion, diversity, digital gap)
- economic impact (e.g., patents, market disruption, speed of market penetration, decrease of cost)
- environmental impact (e.g., reduction of pollution, increase of air quality)
- regulatory impact (e.g., public policies, regulations)
- technological impact (e.g., increase TRL levels of technologies)

How many times/year does your Living Lab share information, knowledge and results with its **users/participants** and external stakeholders?

Information and knowledge can be shared via newsletters, updates on the website, events, social media, meetings...

<1X/year

1x/year

2x/year

3x/year

4x/year

6x/year

monthly

more than monthly

Which types of learning materials (capacity building) has your Living Lab produced for different types of stakeholders over the last 3 years?

Learning materials are any collection of materials to help achieve desired learning objectives.

Multiple choice

Academic papers

Best practices

Datasets

E-courses

Infographics

Mentoring programs

Methods and tools

Podcasts

Policy briefs

Project sheets/leaflets

Trainings

Videos

Webinars

White papers

WIKI's

Other, namely:

None of the above

Does your Living Lab have methods in place to monitor the satisfaction of users and/or stakeholders concerning their involvement/influence on the innovation cycle and concerning knowledge sharing and capacity building?

	I don't know	yes	no
Frequency of involvement as user/stakeholder			
Degree of influence on the innovation cycle as user/stakeholder			
Knowledge sharing by the Living Lab			
Capacity building by the Living Lab			

Does your organization/Living Lab uses standardized methods and forms to monitor the satisfaction of users and/or stakeholders across different Living Lab projects and activities?

With standardized methods and forms we mean if you always ask the same satisfaction questions to your users/stakeholders.

Yes/no

I don't know

How frequently are the following **different types of impact** of the Living Lab monitored by internal self-monitoring impact assessment processes beyond the scope of an individual Living Lab project?

Measuring the frequency of impact assessments is an indicator of the strength of the Living Lab since it allows the Living Lab to change/strengthen its strategies and approaches based on these impact assessments.

	Not being monitored	<1x/ year	1x/ year	2X/ year	3x/ year	quarterly	bi-monthly	monthly
Societal impact								
Environmental impact								
Economic impact								
Regulatory impact								
Academic impact								
Technological impact								
Other, namely:								

Stability and harmonization

The final section focuses on the (financial) *stability* of the Living Lab from a **macro-level** perspective, considering different aspects like the strength of the partnerships in the Living Lab and the revenue streams of the Living Lab. Next to this, it investigates replication (scale-up) of services, tools, methods and/or infrastructures of the Living Lab.

Finally, it looks at the level of harmonization of these strategic and operational building blocks beyond the Living Lab since harmonization will increase the sustainability of the Living Lab.

Stability, including

- level of financial sustainability based on a balanced and diversified set of fundings and revenue streams
- strength of partnerships
- degree of network collaboration

Harmonization and scale-up, including

- standardization of Living Lab procedures, processes, tools, methods and technologies
- replication of Living Lab processes, tools, methods, infrastructures and solutions
- cross-sectoral and geographical collaboration

How many partners have joined or left the managing group/governance team of your organization/Living Lab over the last 3 years?

Assessing if a Living Lab has a growing number of partners contributing to the Living Lab is an indicator for the stability of the Living Lab, assessing the departure of partners is an indicator for the strength of the partnerships within the Living Lab governance.

Joined

Left

Which types of Living Lab services, tools, methods and/or Living Lab infrastructures developed by your organization/Living Lab have been replicated by **partners of the managing group/governance team** of your organization/Living Lab over the last 3 years?

Multiple answers are possible.

Living Lab services (e.g., testing and validation services, co-creation services, Living Lab project planning and management...)

Living Lab tools (e.g., stakeholder mapping, co-creation...)

Living Lab methods (e.g., user engagement process, testing procedures...)

Living Lab equipment and infrastructures (e.g., testing facilities, interaction platforms...)

Other, namely:

None of the above

Which types of Living Lab services, tools, methods and/or Living Lab infrastructures developed by your organization/Living Lab have been replicated by **other Living Lab (networks)** over the last 3 years?

Multiple answers are possible.

Living Lab services (e.g., testing and validation services, co-creation services, Living Lab project planning and management...)

Living Lab tools (e.g., stakeholder mapping, co-creation...)

Living Lab methods (e.g., user engagement process, testing procedures...)

Living Lab equipment and infrastructures (e.g., testing facilities, interaction platforms...)

Other, namely:

None of the above

Looking at the overall finances of your organization (Living Lab), approximately what % of revenues are provided by different funding streams?

Please add % to reach 100% in total. We don't expect calculations to the 1% accuracy, an indication of 100-50-25-10-5% is more than sufficient.

A stable Living Lab is not depending on one type of financial resource. Therefore, with this question we want to assess the balance and diversification of the funding streams of the Living Lab.

- Public funding
- Project funding
- Private funding
- Revenues from own LL services
- Other revenues

What kind of other revenues are provided to your living lab? *If other revenues in previous question*

For how long are these different revenue streams secured?

	Less than 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	+ 5 years
Public funding						
Project funding						
Private funding						
Revenues from own LL services						
Other, namely:						

Over the last 3 years, has your Living Lab been involved in projects and/or initiatives in which multiple Living Labs, cross-border/cross-sector, collaborate, using harmonized Living Lab processes, tools, methods and/or infrastructures?

In these projects/initiatives, Living Labs use the same procedures, tools, methods, or infrastructures to run the project/initiative. For instance, they all communicate and interact with their end-users in the same way or they all test solutions with the same testing procedures.

Yes, a project/initiative using harmonized Living Lab processes (e.g. Living Lab integrative process)

Yes, a project/initiative using harmonized Living Lab tools and/or methods (e.g. harmonized stakeholder mapping, experimentation tools)

Yes, a project/initiative using harmonized Living Lab equipment and infrastructure (e.g., testing facilities, interaction platforms)

I don't know

None of the above

Would you like to add other comments and/or remarks concerning this self-assessment, feel free to add them here below.

END OF SURVEY

Questions qualitative form WATER-MINING

This form assists you in completing the qualitative and more descriptive part of your Living Lab assessment. The application form comprises 15 general questions, which are part of the harmonized Living Lab evaluation framework developed by ENOLL.

The questions cover the six 'Evaluation Chapters', namely: Strategy, Operations, Openness, Users & Reality, Impact & Value, Stability & Harmonization.

Each question is open-ended, with responses limited to one page (max. 250 words). In addition to written input, you can upload additional materials supporting your application (e.g., graphs, charts, graphics, website links, etc.).

Your qualitative application form, coupled with the outcomes of your self-assessment, will serve as the basis for evaluation by three Living Lab experts.

1. STRATEGY

1.1 Governance

Please describe the governance model of your Living Lab and how decisions are made.

The Living Lab governance model describes:

- Which organisations are involved in governance (decision-making & strategic roadmap) of the Living Lab.
- Who pays or contributes to the governance of the Living Lab (financial, personnel, in-kind, representation).
- How and how frequently decisions are made at strategic and operational levels.
- Expected results and strategic objectives of the Living Lab (short to long-term).

Ensure that your description does not exceed 250 words.

Please add an example of your Living Lab's governance model and any supporting materials, at the end of this section.

1.2 Business Model/Plan

Please describe your Living Lab's business plan/model.

The Living Lab business model describes:

- All the key solutions/services, linked to the different phases of an innovation cycle, offered by your Living Lab.
- The main stakeholder (customer) groups targeted by your Living Lab.
- The financial sources of income of your Living Lab in % of overall income, e.g., funded projects =60%, structural funding = 20%, own Living Lab services = 20%
- The main costs related to your Living Lab operations (e.g., personnel, infrastructure, equipment, etc.).

Ensure that your description does not exceed 250 words.

Please add an example of your Living Lab's business plan/model, along with any supporting materials, at the end of this section.

1.3 Internal and External Communication

Please elaborate on how and how often your Living Lab shares information, knowledge, and results, both internally and externally. Provide links and examples of these communication channels.

Ensure that your description does not exceed 250 words.

Please add supporting materials related to the communication (channels) of your Living Lab (e.g., website links) at the end of this section.

2. OPERATIONS

2.1 Human Resources

Please provide information on the Living Lab team operationally running the Living Lab activities.

This explanation should include:

- A description of internal roles (e.g., Living Lab manager, researcher, panel manager, project manager, pilot manager...).
- The names and background experiences of individuals assigned to these roles.
- The amount of time in full-time equivalent (FTE) these individuals are allocated for their roles.

Ensure that your description does not exceed 250 words.

Please add a clear organizational chart of your Living Lab and/or any other supporting materials at the end of this section.

2.2 Projects

Please describe (at least one) co-created project(s) that your Living Lab completed and/or is currently involved in.

Pay attention to:

- The Living Lab methodology used in the project(s).
- Stakeholders involved in co-creation.
- Time spent by your Living Lab.
- Project outcomes.
- If applicable, cross-border/cross-sectoral aspects of the project(s).

Ensure that your description does not exceed 250 words.

Please add any supporting materials related to projects implemented by your Living Lab (e.g., photos, website links, etc.) at the end of this section.

2.3 Equipment & Infrastructure

Please provide details on the available equipment and infrastructure of your Living Lab.

When referring to equipment, consider items such as co-creation materials, analysis tools, feedback tools, devices, etc.

For infrastructure, include details about co-creation spaces, experimentation spaces, working spaces, etc.

Pay attention to:

- The resources present at your Living Lab to be used for co-creation purposes.
- The frequency with which the Living Lab team can use them. Do they have continuous access, or is it more irregular?

Ensure that your description does not exceed 250 words.

Please add any supporting materials related to the equipment and infrastructure at the end of this section.

3. OPENNESS

3.1 Innovation Partnerships, Projects & Processes

Please describe the processes that your Living Lab has implemented concerning innovation partnerships and projects.

Pay attention to:

- Processes related to collaboration with existing partners involved in the governance of your Living Lab.
- Processes regarding the acceptance of new partners into the governance of your Living Lab.
- Processes ensuring an ethical approach within the projects and activities run by your Living Lab.

Ensure that your description does not exceed 250 words.

Please add any supporting materials related to the innovation partnerships & projects at the end of this section.

3.2 Ownership of Results

Please describe how your Living Lab is handling the necessary processes related to the use, sharing, and licensing of feedback, data, and intellectual property (IP). Elaborate on the agreements with partners and users.

Ensure that your description does not exceed 250 words.

Please add any supporting materials concerning processes around the use, sharing, and licensing of feedback, data, and IP at the end of this section.

4. USERS & REALITY

4.1 User-Centricity

Please provide at least two examples of how your Living Lab involves users in a reflective and iterative way within projects.

Pay attention to:

- Describing the Living Lab methodologies used (e.g., Living Lab integrative process, Living Lab innovation cycle).
- Elaborating on the degree of influence users exert on the different phases of the Living Lab methodology (from informing to empowerment).
- Ensuring different groups of stakeholders are involved as users in the projects.

Ensure that your description does not exceed 250 words.

Please add supporting materials (e.g., photos) related to processes around the user-centricity of your Living Lab at the end of this section.

4.2 Lifecycle & Real-Life Contexts

Please provide at least two examples of how and how often, in different phases of the Living Lab innovation cycle, your Living Lab involves users in their real-life contexts within projects.

Real-life contexts refer to the environments where users/participants spend the majority of their time physically/virtually in relation to the innovation project (e.g., the real-life context of employees of a company is the office where they work daily; the real-life context of students is the classroom or school where they spend most of their time).

Ensure that your description does not exceed 250 words.

Please add supporting materials (e.g., photos) related to the processes around the real-life contexts used by your Living Lab at the end of this section.

4.3 Methods & Tools

Please describe the methods and tools used or developed by your Living Lab to involve users. Assess the quality of these methods and tools in relation to the different phases of the Living Lab innovation cycle and/or the Living Lab integrative process.

The Living Lab innovation lifecycle comprises four phases: exploration, co-creation, experimentation, and evaluation. The Living Lab integrative process uses three spaces (problem, solution, deployment) divided into eight steps.

Ensure that your description does not exceed 250 words.

Please add supporting materials related to the tools and methods used or developed by your Living Lab at the end of this section.

5. IMPACT & VALUE

5.1 Co-Created Values

Please describe the values created by your Living Lab and provide real examples of the values created for various stakeholders.

Ensure that your description does not exceed 250 words.

Please add supporting materials related to the values co-created by your Living Lab at the end of this section.

5.2 Impacts

Please explain how and how often your Living Lab monitors:

- Essential components of the Living Lab organisation (e.g., strategy, financials, equipment & infrastructure, openness, project outcomes).
- Different types of impacts generated by the Living Lab (e.g., societal, environmental, economic, regulatory, academic, technological).

Support your explanation with real examples.

Ensure that your description does not exceed 250 words.

Please add supporting materials related to the tools and methods used or developed by your Living Lab at the end of this section.

6. STABILITY & COLLABORATION

6.1 Stability & Scale-Up

Please provide information on the future plans of your Living Lab for a minimum of one year, outlining the strategy to create greater impact for your stakeholders.

Elaborate on any products, solutions, or services from your Living Lab that are being replicated by other Living Labs, networks, organizations, or customers.

Ensure that your description does not exceed 250 words.

Please add supporting materials related to the future plans and the scale-up of products, solutions, or services of your Living Lab at the end of this section.

6.2 Your ecosystem & Collaboration

Please provide a list of local, regional, national, and international stakeholders your Living Lab is engaged with and/or has initiated collaborations (beyond the scope of an individual project).

Describe the purposes of the collaborations with these partners.

Ensure that your description does not exceed 250 words.

Please add any supporting materials related to this list and/or the collaborations at the end of this section.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 869474.