



**PROJECT H2020**

**LIVERUR**

**Living Lab Research Concept in Rural Areas**

---

**DELIVERABLE 3.2:**

**Report of Mapping the living lab  
technique**



*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773757.*



LIVERUR - 773757

[www.liverur.eu](http://www.liverur.eu)

<b>PROJECT TITLE</b>	Living Lab Research Concept in Rural Areas
<b>PROJECT ACRONYM</b>	LIVERUR
<b>GRANT AGREEMENT NUMBER</b>	773757
<b>CALL AND TOPIC</b>	Call H2020-RUR-2017-2
<b>FUNDING</b>	Research and Innovation Action (RIA)
<b>PROJECT DATES</b>	1st of May 2018 - 30th of April 2021
<b>COORDINATOR BENEFICIARY</b>	Fundación Universitaria San Antonio (UCAM)
<b>WEBSITE</b>	<a href="http://www.liverur.eu">www.liverur.eu</a>

<b>DELIVERABLE NUMBER</b>	D3.2
<b>DELIVERABLE TITLE</b>	Report of Mapping the living lab technique
<b>WORK PACKAGE</b>	WP3
<b>LEAD PARTNER</b>	TRA
<b>AUTHOR(S)</b>	Tunde Kallai
<b>TYPE</b>	Report
<b>DISSEMINATION LEVEL</b>	Public
<b>DELIVERY DATE</b>	31/01/2019
<b>LAST MODIFIED DATE</b>	22/04/2020

#### HISTORY OF CHANGES

Date	Content	Author
20/01/2019	Core text	Tunde Kallai
28/01/2019	Peer review	Laura Martínez García (CLEOPA)
22/04/2020	Last version	Tunde Kallai
12/05/2020	Doc. design, grammar and spelling changes	Communication Team

## TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	7
INTRODUCTION .....	9
OBJECTIVES.....	10
<b>1 THE MAIN DRIVER IN RURAL LIVING LAB CASE STUDIES: PARTICIPATORY DESIGN.</b>	<b>11</b>
1.1 The main elements of the participatory design by Living Lab technique in LIVERUR project.....	11
1.2 Adaptation of Living Lab technique to LIVERUR.....	13
1.3 Circular Rural Living Lab Case Studies (1&2) and Use Cases based on participatory Ideation/ Design techniques .....	14
<b>2 RURAL LIVING LAB CASE STUDY ANALYSIS .....</b>	<b>15</b>
2.1 Rural Living Lab Case Study Analysis Methodology .....	15
2.1.1 Step- by –step methodology for Case Studies on the rural circular economy .....	15
2.1.2 Structure of T3.2.1. : The circular aspect of Rural Living Lab Case Studies .....	17

2.1.3 Structure of T3.2.2. Rural Living Lab Case Studies on Transition to the circular economy.....	19
2.1.4 MATRIX Model of RLL Case Studies .....	20
2.2 Workflow of RLL Case studies: “To Do” .....	23
2.3 RLL case studies templates : instructions .....	25
<b>CONCLUSIONS.....</b>	<b>27</b>
<b>REFERENCES.....</b>	<b>29</b>
<b>ANNEXES .....</b>	<b>30</b>
<b>ANNEX 1: Rural Living Lab template for use case analysis .....</b>	<b>31</b>
<b>ANNEX 2: GUIDELINE TO STEP-BY-STEP APPROACH STRUCTURING THE RLL CASES ON TRANSITION TO THE CIRCULAR ECONOMY (T3.2.2. RLL CASE STUDY ON TRANSITION TO THE CIRCULAR ECONOMY TEMPLATE)....</b>	<b>39</b>
<b>ANNEX 3: LIST OF 4 TEAMS &amp; MEMBERS BY THE DOODLE POLL.....</b>	<b>43</b>
<b>ANNEX 4: “CASE STUDY” AND “USE CASE “ – A TAXONOMY DESCRIPTION.....</b>	<b>44</b>
<b>ANNEX 5: T3.2.1. Rural Living Lab Case Studies About Needs .....</b>	<b>45</b>
<b>ANNEX 6: T3.2.2. Rural Living Lab Case Studies on transition to circular economy .....</b>	<b>186</b>

## FIGURES

<b>Figure 1. Participatory design and learning/ action cycles in a Living Lab Methodology. ....</b>	<b>11</b>
<b>Figure 2. The participatory design by Living Lab technique in LIVERUR and synergies.....</b>	<b>12</b>
<b>Figure 3. User needs (RLL Case Study 1) &amp; Transition to circular economy (RLL Case Study 2) vs. Service/process concept (RLL Use Case). ....</b>	<b>14</b>
<b>Figure 4. Living Lab process schema through T3.2.1 , T3.2.2 &amp; T3.3.. ....</b>	<b>15</b>
<b>Figure 5. Step-by-step methodology adapted to</b>	

LIVERUR T3.2.1 and T3.2.2.....	17
Figure 6. Circular Living Lab chart.....	18
Figure 7. Workflow of WP3-WP5.....	23
Figure 8. DOODLE poll (Link: <a href="https://doodle.com/poll/v2b3wpgkyp5tixwu">https://doodle.com/poll/v2b3wpgkyp5tixwu</a> ).....	24

## TABLES

Table 1. T3.2.1 RLL Case Study template structure.....	20
Table 2. Template of T3.2.2. Case Study on Transition to the circular economy....	21
Table 3. T3.2.1. RLL Case Study structure template.....	24
Table 4. Proposed RLL Case Studies by the 4 main themes. ....	26

## EXECUTIVE SUMMARY

### Purpose

The living lab movement is emerging globally as an approach by its methodologies and tools for economic and social development at the local and regional scale, giving great opportunities for rural, urban and regional development, to all actors in the **Quadruple Helix innovation**. Governmental organisations, Higher Education Institutions, civil organisations, large companies and SMEs joining and demonstrating a new role in promoting and facilitating innovation in case of **LIVERUR** project and leveraging its sustainable competitiveness.

In T3.1. ALL Partners have been attended in the creation of a large repository, 86 examples of Rural Living Labs from 24 countries on the basis of three main characteristics (Almirall and Wareham, 2008): user involvement, real-life contexts, and public-private-people partnership (PPPP). A set of **offline and online Surveys helped to make the best interpretation about the Rural Living Lab definition.**

In WP3.2 **LIVERUR** consortium follows **a specific Guideline and workflow in order to categorise and specify the main characteristics of 3-3-3-3 (total 12) Rural Living Lab Case Studies in each of the 4 pillars in**

**the activity fields of the future circular rural living labs. The 4 work teams are lead by 4 WP leaders:**

- 1. *Environment and Resilience: AWI (WP4)*
- 2. *Resource efficiency efficacy and management: FRCT (WP5)*
- 3. *Competitiveness of SMAEs & rural value chains: TRA (WP3)*
- 4. *Openness to new markets and technologies: CEA (WP2)*

**Design/methodology/approach** – After designing a RLL Case Study Survey template, two Guidelines (word and ppt ) have been prepared (all documents have been shared to the consortium partners) and a Doodle Poll has been launched to ask ALL Partners to select/ join one of the 4 dominant activities in their future circular rural living lab (see above). The work is based on two steps and Participatory design methodology. Step One: to analyse the selected RLL Case by the Case Study template. Step Two: to define the RLL Case Study by the Circular Economy transition model.

The thematic group leaders were asked to form their own work team, and work further either on the pre-proposed best Case Studies by TRA, or on their own selection (from the database of T3.1 or a new Case Study). Then the 4 work teams have started to analyse the 3 Case studies based on their topic and fill 3-3 Case Study templates each teams. In the next Task (T3.3), based on the main findings, 3-3 Use cases have been defined, based on the user/participatory driven living lab methodology.

**Findings** – Voting results of the poll by 32 LIVERUR colleagues are:

- 9 team members - *Environment and Resilience: AWI (WP4): 3 Case Studies of Circular RLLs*
- 6 team members - *Resource efficiency efficacy and management: FRCT (WP5): 3 Case Studies of Circular RLLs,*
- 12 team members - *Competitiveness of SMAEs & rural value chains: TRA (WP3): 3 Case Studies of Circular RLLs,*
- 5 team members - *Openness to new markets and technologies: CEA (WP2): 3 Case Studies of Circular RLLs.*

#### **Circular RLL**

*4 thematic RLLs x 2 Case Studies/thematic x 3 RLL Case Studies/per group= 24 Rural Living Lab Case Studies are developed (T3.2.1 and T32.2) + additionally 1 more RLL (with 2 case studies in Group 2 Resource efficiency and management). Total: 26 RLLs templates (T3.2.1. & T3.2.2).*

**Originality/value** – *This Survey will be of value to refine the next task in WP3.3 as well. It could as well help all the 13 circular rural living labs to prepare their own implementation.*

**Keywords** *Open innovation, Business models, Quadruple Helix model of stakeholders, Rural Living Labs.*

## INTRODUCTION

**LIVERUR** combines relevant rural topics (Agriculture, Tourism, Innovation, Energy & Environment, Food, Water, Mobility, Entrepreneurship, Social Innovation etc) for **future challenges in rural/remote/mountain areas** to give them real and sustainable perspectives in order not to force them to leave their living areas.

We are collaborating on a unique initiative and open innovation approach (called **Living Lab**) providing knowledge transfer from our research results, reusable/ replicable methods and tools to carry out such a transformation (technological, socio-economic, human centric) for all partners in their targeted territories.

**LIVERUR** project aims at bringing rural innovation along with high impact to the **wide spectrum to the agricultural activities, entrepreneurship, job creation, digital skills improvement, shared and circular economies along new business models and prototypes for better decision-making and community engagement.**

Why Living Labs? **Living Labs are composed of heterogeneous actors, resources, and activities that enable and support innovation at all phases of the lifecycle, and all are collaborating for creation,**

prototyping, validating, and testing of new technologies, services, products, and systems in real-life contexts.

## OBJECTIVES

By the DoW of **LIVERUR** in WP3 Task 3.2 **Objective:** Conceptualize the living lab technique according to the **LIVERUR** four pillars: **Environment and Resilience, Resource efficiency – efficacy and management, Competitiveness of SMAEs & rural value chains, Openness to new markets and technologies.** (Lead role: TRA) by the two steps Case Study analysis: 1. RLL assessment 2. Transition to circular economy.

**Input:** Every partner will contribute according to their expertise. Predominant role will be given to technical partners and especially those with social inclusion and financing expertise (ZSI), entrepreneurial expertise (IED), territorial analysis expertise (AWI, CLEO, SOG).

**Activity: Rural Living Lab Case Study analysis on Needs and Transition to the Circular economy** by implementing the mix of various methodologies from FP6 projects: CoreLabs & Collaboration@Rural etc. The main aspects of rural innovation and RLL methodology by C@R and the LL Harmonisation Cube model from Collabs project have been implemented and adapted to **LIVERUR**. The **LIVERUR** living lab approach is based on **the assessment of the rural innovation promoting the regional and rural development through 4 main pillars**, tailored to local conditions, which has been chosen to design, setting up, launch, develop and operate the circular rural living labs.

Sustainable and green seem like synonyms and there are actually several differences between those concepts, so circular, sustainable or green economy in rural context are still challenging topics today. The participatory design approach and its main characteristics can be used through 5 major stages of the Living Lab : 1) User-led definition of needs 2) Conceptualization 3) Examples prototyping and limited scale experimentation, 4) Extensive application development and field experiments: implementation 5) commercialization could help the LIVERUR community to build attractive rural living lab models. The analyzed RLL Case Studies would help to define Use Cases in the next T3.3.

# 1 THE MAIN DRIVER IN RURAL LIVING LAB CASE STUDIES: PARTICIPATORY DESIGN.

Rural Living Labs (RLLs) are experimentation and validation environments of ICT-based innovation activities. They are usually characterised by the early involvement of user communities, by openness in establishing a close cooperation between developers, users and other stakeholders, and by **the creation of rapid learning cycles accelerating the innovation process**. Schaffers et al<sup>1</sup> argue that **providing that mechanism to improve and change rural innovation system and stimulating openness and learning cannot be provided only by ordering specific methods and tools to the designers or to users or even by implementing a participative design approach.**

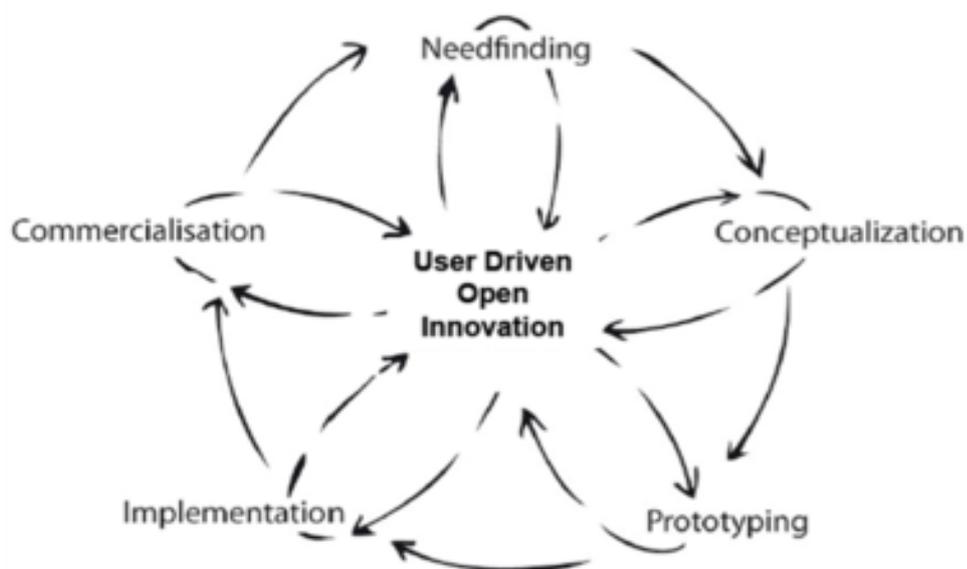


Figure 1. Participatory design and learning/action cycles in a Living Lab Methodology.

## 1.1 The main elements of the participatory design by Living Lab technique in LIVERUR project

The Living Lab approach to rolling out ICT-based services through the **creation of a sustainable open, co-creation environment** to facilitating the adoption of innovative actions towards **enabling user-driven approach** in the targeted regions. The application of Rural Living Labs in **LIVERUR** project follows the **main workflow and achievements** of the former FP6/FP7 rural living lab projects (Collaboration@Rural and COLLABS projects) because of a number of reasons.

Following the findings of Guzman et al<sup>2</sup> in terms of “strategies for a rural living lab set-up” and they included, the LIVERUR Work Packages can be organised according to their main highlights such as:

- *Building Local User Communities* according to **LIVERUR** main goals, the project involves the *setting up of the right environments for the rural living labs*. This situation could be mainly achieved

1 Hans Schaffers, Javier Garcia Guzman, and Christian Merz. An action research approach to rural living labs innovation. P. Cunningham and M. Cunningham (Eds), Collaboration and the Knowledge Economy: Issues, Applications, Case Studies. IOS Press, pages 617{624, 2008.

2 Javier Garcia Guzman, Hans Schaffers, Vilmos Bilicki, Christian Merz, and Monica Valenzuela. Living labs fostering open innovation and rural development: Methodology and results. In Proceedings of the Conference on International Conference on Concurrent Enterprising (ICE), 2008.

through local partners who already have communities of people with whom they work in the targeted territories (WP2)

- *User Involvement.* According to **LIVERUR** user involvement is reflected in two categories.: (1) *strategic stakeholders who build partnerships and guide the living labs innovation strategically,* and (2) *involvement of different partners among which are users or citizens in actual innovations.* An important point made about user involvement is distinction of the role of users which is not to co-create technical advances, but - in partnership with developers - to define solutions, identify enhanced work and business processes and define business models.(WP3, WP4).

- *Phasing, cyclic and spiral development.* Once the right tools/methodologies and services have been rolled out with an active user community, activities for the living lab become iterative usually guided by field experimentations (WP4, WP5).

This strategy is directly in line with the proposed actions for the **LIVERUR** project with planned pilot phases for trials and feedback (WP5). After the pilots (WP5), the results would be incorporated back into the requirement elicitation for further development of the platform and fine-tuning (WP3, WP4).

- *Networks and synergies creation.* **LIVERUR** aims to make available free and open source licences for tools and services geared towards local developers and entrepreneurs in order to enhance local social development (WP6, WP7). RLL concept therefore provided the desired modelling environment for the planned 13 Circular Rural Living Labs.

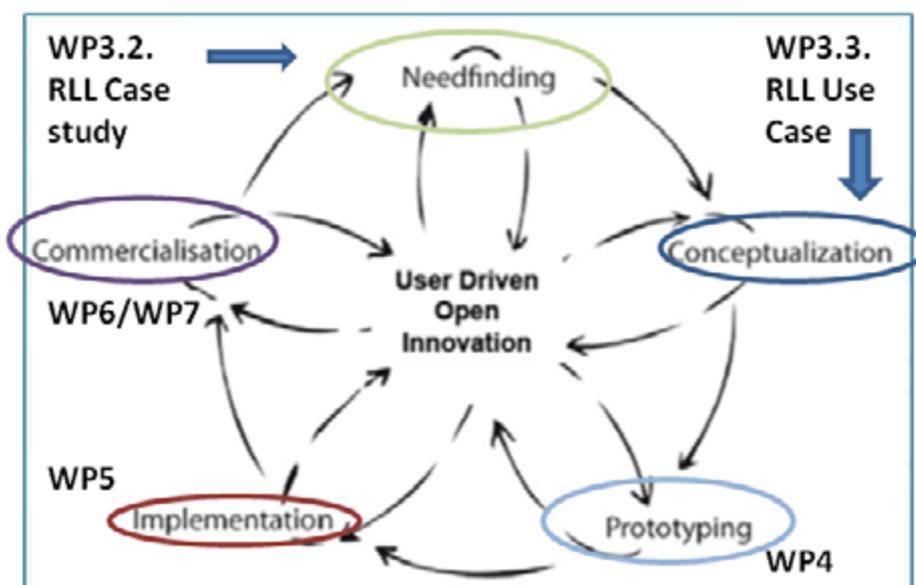


Figure 2. The participatory design by Living Lab technique in LIVERUR and synergies.

The **Living Lab cycle model** presents to **LIVERUR** user community a way of surmounting the challenge: **how to implement the circular economy into the piloting territories by using the user driven participatory model of the Living Lab technique.**

This approach will hopefully allow **LIVERUR** community to include as much local participation as possible. **The model also provides a means for domain descriptions and also to permit detailed reasoning and validation.**

By using the model, **LIVERUR** project partners would able to identify correctly who stakeholders are as a key **LIVERUR** goals in elicitation even though it is done by proxy.

## 1.2 Adaptation of Living Lab technique to LIVERUR

Schaffers et al. agreed in C@R project that developing a successful strategy for preparing, developing and implementing Living Labs as innovation environments in rural areas requires that *local situation characteristics* must be taken into account. However the challenge in **LIVERUR** lies in the fact that developers of the technologies behind the innovation and the potential users and/or co-creators of these technologies are not staying always at the same geographical locations. There is also a lack of infrastructure which is way more severe than in other areas. Yet another challenge is the high probability that the researchers and target users have completely different expectations: a challenge mainly due to the fact that even though the technologies behind our idea are not entirely novel, its applications to the context is hence the need for adaptations to Living Labs.

Bergvall-Kareborn et al.<sup>3</sup> cite three different perspectives to the concept of Living Lab namely, *Living Lab as an environment, as a methodology and as a system*. They argue that all three are rather complementary and not contradictory. The environment perspective is defined as the one where objects such as technological platform and user communities come to the forefront. Inherently, developing an innovation with Living Lab takes an iterative approach and so using pilots in **LIVERUR** context would serve that purpose.

Even though it is estimated that the speed of the cycles of development involved would be much slower than if we were in the community itself, it is hoped that during each pilot a better version of the proposed system would be implemented and tested. *Users/co-creators input and feedback would then influence the 13 pilots until their own system is fairly stables and each pilot is terminated.*

Another difference between the Living Lab and other development approaches is their focus on the *vertical value chain in which customers, producers, and suppliers are involved*, in order to **create new businesses**: in fact, the *Living Lab approach does not only aim at involving end users in the development processes, because it also strives to facilitate the interaction between other relevant stakeholders, such as research organizations, companies, public sector, and society as a whole.*

Therefore the **main mission of LIVERUR is to play a role as catalyser and/or driver of RURAL INNOVATION. This aspect should be assessed and analysed through the RLL Case Studies as well.**

Thus, from a process perspective, **Living Labs are innovative because they encompass two ground-breaking ideas:**

- (a) Managing a multi-organizational, inter-disciplinary collaboration for innovation (pilot configuration challenge), and (b) Engaging intensively with end users (methodological and instrumental challenge). In order to be met, both challenges require specific research methods and tools, respectively to (a) Trigger innovators and support the formation of effective innovation groups, and
- (b) Engage users adequately on the innovation process.

Several methods, such as **action research, community informatics, contextual design, user-centred design, participatory design, empathic design, emotional design, and others, already exist in research and practice, but they mostly fail to sufficiently empower users for co-creation in open development environments.**

---

<sup>3</sup> Birgitta Bergvall-Kareborn, Marita Holst, and Anna Stahlbrost. Concept design with a living lab approach. Proceedings of the 42nd Hawaii IEEE International Conference on System Sciences, 2009.

### 1.3 Circular Rural Living Lab Case Studies (1&2) and Use Cases based on participatory Ideation/Design techniques

There is a difference between the main goals and achievements of T3.2.1. RLL Case Study on Analysis of needs, problems and market and T3.2.2. RLL Case Study of Transition to the circular economy (Word template) and T3.3. Rural Living Lab Use Cases (excel file). The Case Study vs Use Case taxonomy definition is attached to Annex 3.

In Task (T3.2.) – from All LIVERUR partners - it is requested to combine the “lesson to learn” through T2.1. RLL Case study on Needs (problems, markets), to select the best 3 Rural Living Lab Cases to analyze from WP3.1 database or from the own experiences of the future RLL owners/ stakeholder). Many cases from the database (WP3.1) can be selected and analyzed.

In T3.3. it will be requested to work on new Circular Rural Living Lab Use Cases, with the Ideation/ Design techniques of new Circular RLLs.

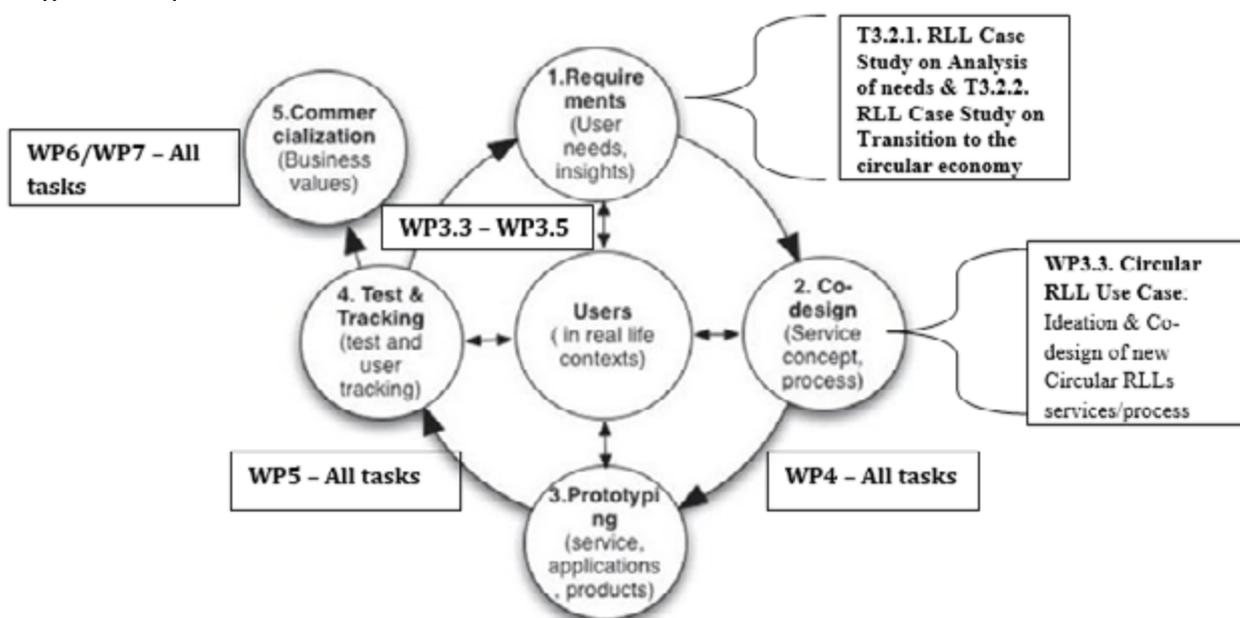


Figure 3. User needs (RLL Case Study 1) & Transition to circular economy (RLL Case Study 2) vs. Service/ process concept (RLL Use Case).

In order to explain the main differences, complementarities, evaluation and advantages between the various WPs and tasks, the RLL Case Study 1 on User needs & RLL Case Study 2 on Transition to Circular Economy vs RLL Use Case schema helps to understand the participatory design & co-creation by Living Lab methodology approach within LIVERUR project.

# 2 RURAL LIVING LAB CASE STUDY ANALYSIS

In T3.2 task, LIVERUR consortium is following a specific Guideline in order to categorise and specify the main characteristics of 3-3-3-3 (total 12) Rural Living Lab Case Studies in each of the 4 pillars in the activity fields of the future circular rural living labs.

The 4 work teams are lead by 4 WP leaders:

- 1.Environment and Resilience: AWI (WP4)
- 2. Resource efficiency efficacy and management: FRCT (WP5)
- 3.Competitiveness of SMAEs & rural value chains: TRA (WP3)
- 4.Openness to new markets and technologies: CEA (WP2)

## 2.1 Rural Living Lab Case Study Analysis Methodology

The two RLL Case Study analysis (T3.2.1. and T3.2.2.) and RLL Use Case design (T3.3) follows the Co-creation as a Living Lab process which provides an opportunity for on-going interaction - **from participatory design until user driven implementation**- between the main participants of the Quadruple Helix governance model (partners, clients, and users), allowing collaboration and fostering innovation.

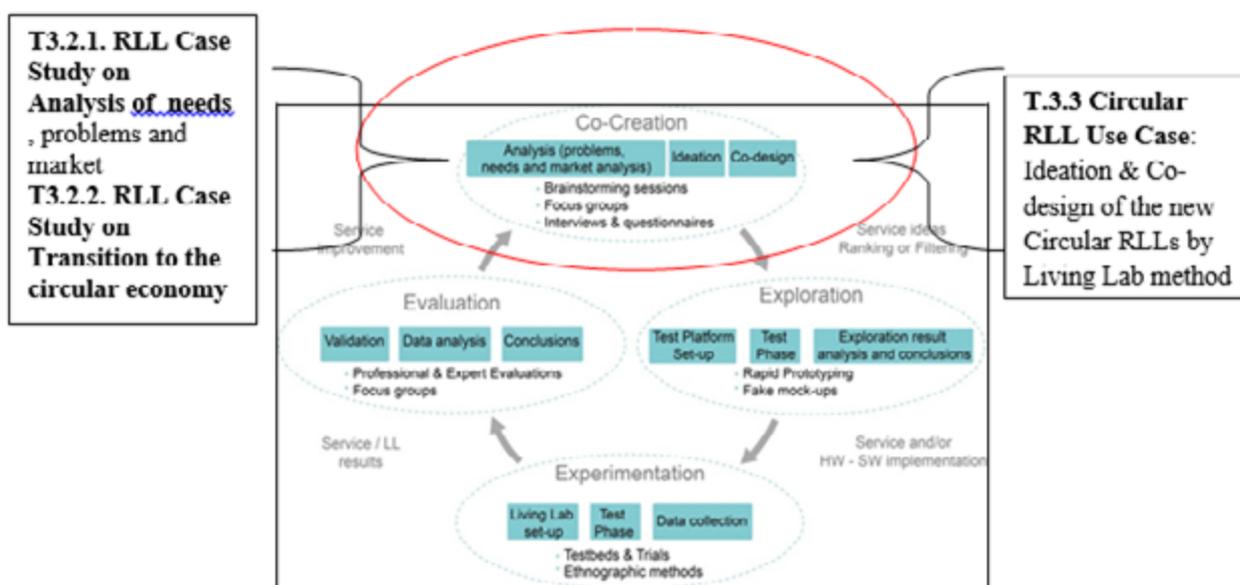


Figure 4. Living Lab process schema through T3.2.1 , T3.2.2 & T3.3..

### 2.1.1 Step- by –step methodology for Case Studies on the rural circular economy

The conceptual framework behind the structure of T3.2.1. RLL Case Study on Analysis of needs, problems and market and T3.2.2. RLL Case Study on Transition to the circular economy is mixture of the previous Rural Living Lab Case Studies approach (from C@R and CoLLabs projects) with special focus to the sustainable and green economy in rural territories. The main aspects of rural innovation and RLL methodology by C@R and the LL Harmonisation Cube model from Collabs project have been implemented and adapted to LIVERUR. The methodology in T3.2.2. RLL Case

**Study on Transition to the circular economy** within **LIVERUR** project were conducted according to the stepwise approach developed in CIRCULAR IMPACTS H2020 project<sup>4</sup>.

In this Case Study (T3.2.2.), the combined conceptual framework methodology focuses on comparing circular business opportunities with **baseline developments, consequences for changes in the key sector and other parts of the economy, systematically investigating the impacts on the environment and society at several levels of analysis, broadening the perspective by exploring alternatives for the analysed business opportunity, and an analysis of policy options to realize about the circular business opportunities.**

An Infographic on the transition to the circular economy provides an excellent guideline: **how it can be explored the potential of circular-economy transitions by conducting case studies and at same time implementing the user driven - participatory Living Lab technique.**

It visualizes the **step-by-by step methodology**, developed within the CIRCULAR IMPACTS project in an intuitive way, which were adapted to using the Living Lab technique in rural context in the **LIVERUR** project.

It also highlights the most important workflow and aspects to consider when preparing such case studies. The original concept has been developed by Aaron Best and Laurentius Duin in the Ecologic Institute (2018) and untitled: Step-by-step Methodology for Case Studies on the Circular Economy<sup>5</sup>.

---

4 Measuring the IMPACTS of the Transition to the CIRCULAR Economy (CIRCULAR IMPACTS) <https://circular-impacts.eu> . The infographic is licensed under a Creative Commons license CC BY-ND 4.0, i. e. it can be used without any changes if the author is mentioned. The infographic is part of a series of three infographics about the circular-economy in transition in Europe, developed by Ecologic Institute

5 The infographic is licensed under a Creative Commons license CC BY-ND 4.0, i. e. it can be used without any changes if the author is mentioned. The infographic is part of a series of three infographics about the circular-economy in transition in Europe, developed by Ecologic Institute.

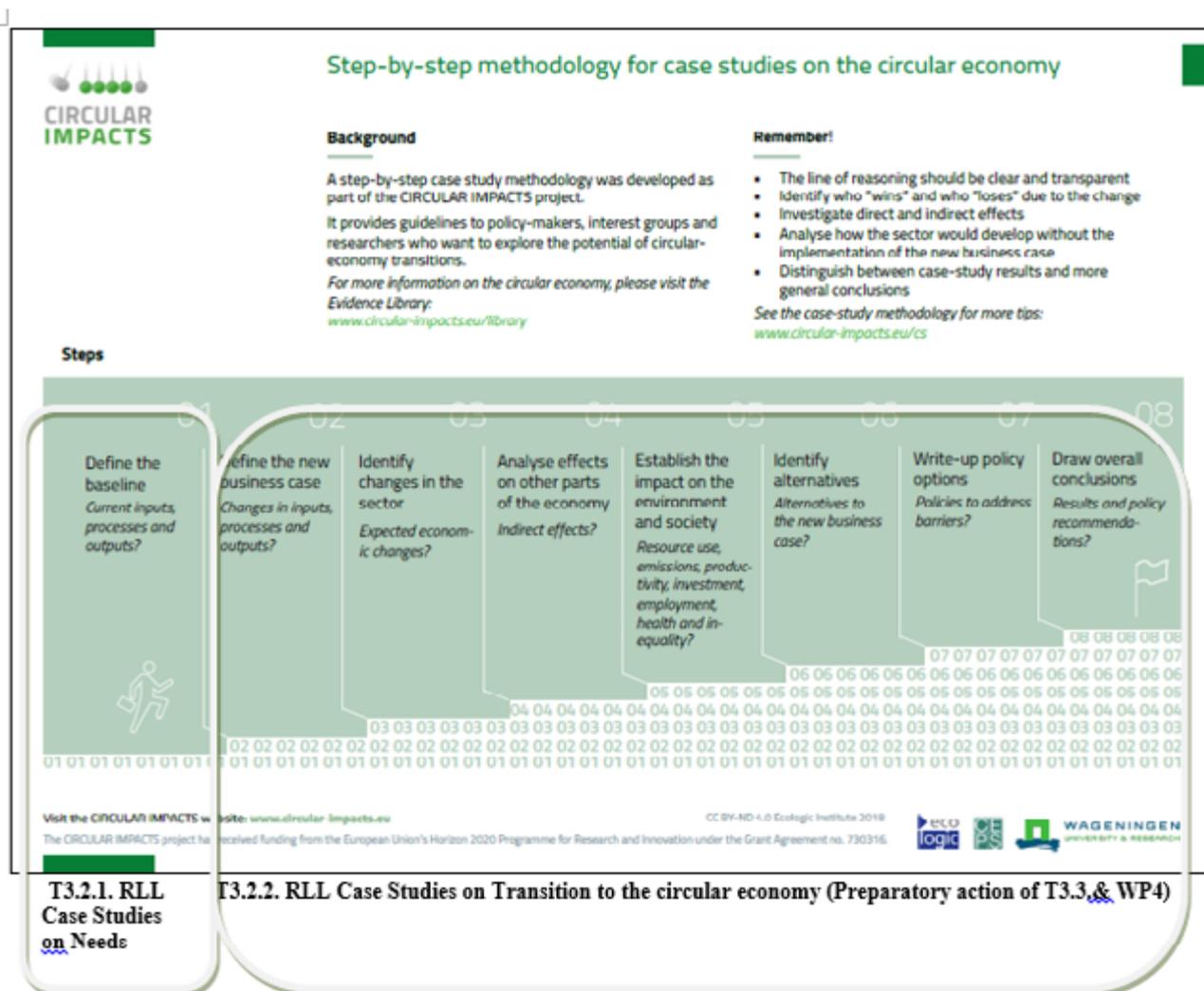


Figure 5. Step-by-step methodology adapted to LIVERUR T3.2.1 and T3.2.2..

## 2.1.2 Structure of T3.2.1. : The circular aspect of Rural Living Lab Case Studies

In selecting the **Rural Living Lab Case Studies with CIRCULAR aspects to T3.2.1 from the T3.1 Rural Living Lab database or beyond**, we made use of the overview given in D3.1., Report of Case studies on rural living lab's definitions.

In rural context the implementation of the circular economy requires changes throughout **value chains, from product design to new business and market models, from new ways of turning waste into a resource to new models of consumer behavior**. This implies systemic change and innovation in technologies but also in **organization, society, finance methods and policies**.

Specific areas of intervention may include *materials production and use, product design, distribution, consumption phase, public procurement, labeling and product information, waste management, development of markets for secondary raw materials (e.g. organic fertilizers), improving framework conditions in sectors such as sustainable chemical production, bio economy, food, construction, plastics, critical raw materials, water use, and improving cross sectorial cooperation, e.g. by the promotion of industrial symbiosis, repair and re-use and enabling the development of new business models*.

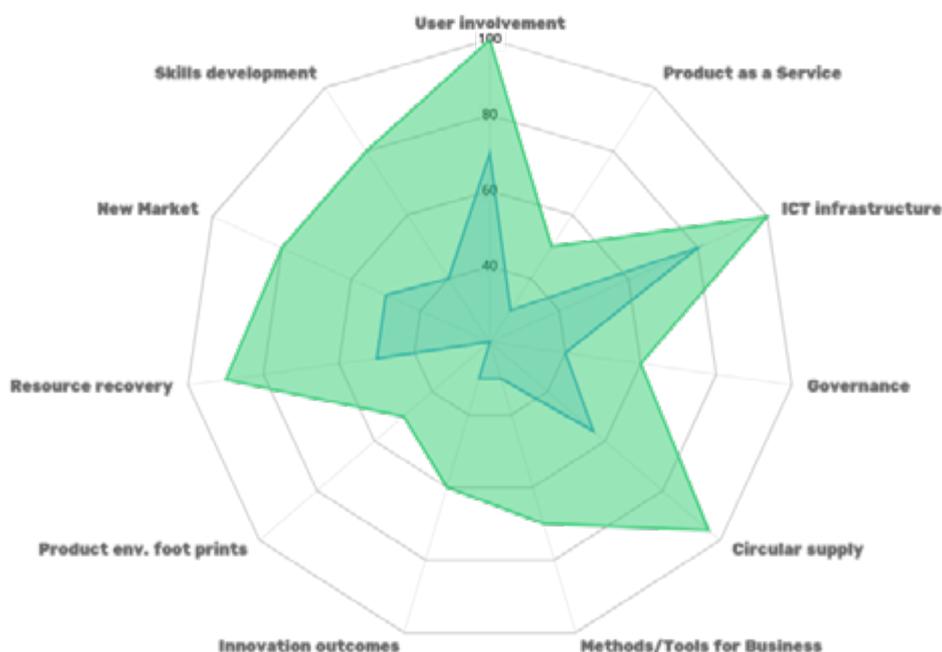


Figure 6. Circular Living Lab chart.

Therefore the main criteria in the selection of the CIRCULAR Rural Living Lab Cases **contains the most relevant elements of the main circular economy processes** in one of the 4 pillars: 1. *Environment and Resilience*, 2. *Resource efficiency efficacy and management*, 3. *Competitiveness of SMAEs & rural value chains*, and 4. *Openness to new markets and technologies*, see Box 1.

Within the working definition from 3.1 of the RLL all case studies selected shared one or more characteristics of the four pillar of LIVERUR and are therefore relevant to explore to gather best practices for the following tasks.

<b>USE LESS PRIMARY RESOURCES</b>
<ul style="list-style-type: none"> <li>• Recycling</li> <li>• Efficient use of resources</li> <li>• Utilization of renewable energy sources</li> </ul>
<b>MAINTAIN THE HIGHEST VALUE OF MATERIALS AND PRODUCTS</b>
<ul style="list-style-type: none"> <li>• Product life extension</li> <li>• Remanufacturing, refurbishment and re-use of products and components</li> </ul>
<b>CHANGE UTILISATION PATTERNS</b>
<ul style="list-style-type: none"> <li>• Product as service</li> <li>• Sharing models</li> <li>• Shift in consumption patterns</li> </ul>

Box 1. Circular Economy: A review of definitions, processes and impacts (D2.1) of Circular Impacts project

The structure of T3.2.1. RLL Case Study on Analysis of needs, problems and market: (the used colors per rows help to understand the logic of matrix in section 2.1.5.).

<b>T3.2.1. (Circular) Rural Living Lab Case Study template</b>
Your role , Case Study (short pitch, description), upload illustrative features (diagrams, pictures, flowcharts)
What was the type of the sustainable/ green solution? (Technology, Service, Sustainable /Green business model, Other)
What does the featured solution contributed to?
Which sector does the case study belong to?
How would you further categorize the sector for Materials?
How would you further categorize the sector for Industrial Processes?
How would you further categorize the sector for Energy Production?
How would you further categorize the sub-sector for Alternative Energy Production?
How would you further categorize the sector for Resource Efficiency
How would you further categorize the sector for Agriculture and Fisheries
How would you further categorize the sector for Protection of Natural Resources?
How would you further categorize the sector for Waste Treatment and Recycling
How would you further categorize the sector for Transportation?
How would you further categorize the sector for Buildings?
How would you further categorize the sector for Hospitality?
Information for Solution Assessment Maturity of the solution (TRL level) Financing Operating costs
Emission Reductions Energy Consumption Savings Water Consumption Savings Material Consumption Savings Total Waste Avoided
Technical and Human prerequisites
Regulatory framework prerequisites and constraints
The SME that adopted the sustainable/green solution Name of the SME Description of the SME Upload the logo of the company Sector Contact details of the SME Location
The SME that provided the green solution Name of the SME Description of the SME Upload the logo of the company Sector Contact details of the SME Location

Table 1. T3.2.1 RLL Case Study template structure.

The Rural Living Lab case studies with circular aspects were selected in such way that there is a link between the RLL case studies and each main circular economy process, as mentioned in Box 1.

### 2.1.3 Structure of T3.2.2. Rural Living Lab Case Studies on Transition to the circular economy

The RLL Case Studies are in line with the EU action plan for the circular economy published by the European Commission in December 2015. It helps to accelerate Europe's transition towards a circular economy, boost global competitiveness, promote sustainable economic growth and generate new jobs.

The adapted methodology of Circular Impact H2020 project to **LIVERUR** ensures that the RLL case studies focus on the overall impacts of the circular economy. The frame of the methodology is a **step-by-step approach, T3.2.2**. Therefore the **Rural Living Lab (RLL) Case Study on Transition to the Circular Economy** describes the selection of the case studies on the four pillars of **LIVERUR** project. (The Guideline of T3.2.2. is attached at Annex II.).

<b>Step-by-step approach structuring the case studies on transition to the circular economy</b>	<b>RLL Case Study on the Environment and Resilience</b>	<b>RLL Case Study on Resource efficiency efficacy and management</b>	<b>RLL Case Study on Competitiveness of SMAEs &amp; rural value chains</b>	<b>RLL Case Study on Openness to new markets and technologies</b>
Step 1: Defining the baseline				
Step 2: Defining the new business case				
Step 3: Changes in the key sector				
Step 4. Expected effects on other parts of the economy				
Step 5: The impact environment & society				
Step 6. Are alternatives available?				
Step 7: Policy options				

Table 2. Template of T3.2.2. Case Study on Transition to the circular economy.

### 2.1.4 MATRIX Model of RLL Case Studies

T3.2.1. & T3.2.2. RLL Case Studies start with describing the current (linear vs circular) business models, which are the baselines, to subsequently do the same for the *new circular rural living lab business cases*. The general principles of a circular economy can be used together with the business models to describe why the new business case fits within the concept of a circular economy (more: in WP4). The new business models of the new **LIVERUR circular rural living labs** would be feasible thanks to enabling factors, e.g. **technological improvements, but also face several barriers, such as regulations which may have been useful in a linear economy but are counterproductive in a circular economy (see 4 main pillars)**. These enabling factors and barriers are often the point of departure for **policy formulation**. T3.2.1 and T.3.2.2 RLL Case Studies describe **direct and indirect effects of the new business cases on the sector and on the society as a whole, with**

an emphasis on the environmental, economic and social impacts, which helps to build RLL scenarios & Use Cases in T3.3.

The table below shows the impact of T3.2.1 to T3.2.2. as a matrix, the setting-up of Circular Rural Living Labs through the step-by-step process on transition into the circular economy.

MATRIX model: (RLL Case Study 1 – RLL Case Study 2)	Step 1: Defining the baseline	Step 2: Defining the new business case	Step 3: Changes in the key sector	Step 4: Expected effects on other parts of the economy	Step 5: The impact environment & society	Step 6. Are alternatives available?	Step 7: Policy options	Step 8. Overall conclusions
Your role Case Study (short pitch, Description), Upload illustrative features ( diagrams, pictures, flowcharts)								
What was the type of the sustainable/ green solution? (Technology, Service, Sustainable / Green business model, Other)								
What does the featured solution contributed to?								
Which sector does the case study belong to?								
How would you further categorize the sector for Materials?								
How would you further categorize the sector for Industrial Processes?								
How would you further categorize the sector for Energy Production? How would you further categorize the sub-sector for Alternative Energy Production?								

How would you further categorize the sector for Resource Efficiency								
How would you further categorize the sector for Agriculture and Fisheries								
How would you further categorize the sector for Protection of Natural Resources?								
How would you further categorize the sector for Waste Treatment and Recycling								
How would you further categorize the sector for Transportation?								
How would you further categorize the sector for Buildings?								
How would you further categorize the sector for Hospitality?								
Information for Solution Assessment Maturity of the solution (TRL level) Financing Operating costs								
Emission Reductions Energy Consumption Savings Water Consumption Savings Material Consumption Savings Total Waste Avoided								
Technical and Human prerequisites								

Regulatory framework prerequisites and constraints								
The SME that adopted the sustainable/green solution Name of the SME Description of the								

Table 3. T3.2.1. RLL Case Study structure template.

The mentioned table is a matrix from the outcomes of T3.2.1. and T3.2.2 . Both are represents the preparatory phases in this Deliverable. The LEAN and Circular Economy related Business Model Canvas in the following Deliverables are fully completed. The further impacts and the evaluation of linear to circular are deeply developed & filled up in the next Deliverables (D3.4, D3.5.D4.2).

## 2.2 Workflow of RLL Case studies: “To Do”

After designing the T3.2.1. **RLL Case Study on Analysis of needs, problems & market survey & T3.2.2. RLL Case Study on Transition to the circular economy survey** templates, two Guidelines (in forms of word and ppt) has been prepared, all documents have been shared to the consortium partners, and a Doodle Poll has been launched to ask ALL Partners to select/ join one of the 4 dominant activities in their future circular rural living lab. (see above).

The thematic group leaders were asked to form their own work team, and work further or on the pre-proposed best RLL Case Studies by TRA, or on their own selection (from the database of T3.1 or a new Case Study). Then the 4 work teams have started to analyse 3 Case studies on their topic and fill 3-3 Case Study templates by each teams following the next step 1: **RLL Case Study on Analysis of needs, problems & market survey & Step 2: RLL Case Study on Transition to the circular economy survey.**

The next Task (T3.3) which is based on the main findings of T3.2.1 and T3.2.2., 3-3 Circular Rural Living Lab Use Cases could be defined, is focused on the *Framework description of the circular economy and its transition through rural living labs. These tasks will be developed further during the next WPs (WP3, WP4 and WP5).*

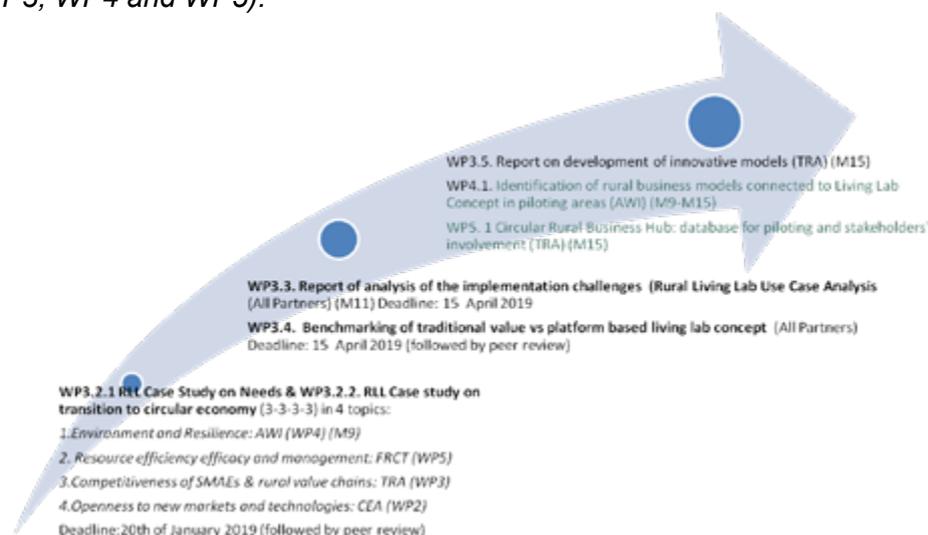


Figure 7. Workflow of WP3-WP5.

**Subtask 1: TRA Designed the RLL Case Study word template of T3.2 and RLL Use Case template of T3.3. in excel (See the RLL Case study template in Annex 1. with 2 Guidelines, see both in the PM server). Deadline: 12th of December 2018**

**Subtask 2: T3.2 GoToMeeting telco – organized by the Coordinator Team. TRA as WP3 leader asked the other 3 WPLs to apply for leadership in the working groups in order to support the RLL Case study analysis of 3-3 Case studies by each groups. Deadline: 12th of December 2018.**

The 4 main pillars of **LIVERUR** have been distributed as follow among the partners, lead by WP2-WP3-WP4-WP5 leaders.

<b>1.Environment and Resilience (Team leader: AWI)</b>	<b>2.Resource efficiency efficacy &amp; management (Team leader: FRCT)</b>	<b>3.Competitiveness of SMAEs &amp; rural value Chains (Team leader: TRA)</b>	<b>4.Openness to new markets and technologies (Team leader: CEA)</b>
--	--	---	--

**Subtask 3. WP3.2 “Take your choice (Doodle Poll) based on the main four pillars”: Deadline: 22. December.2018.**

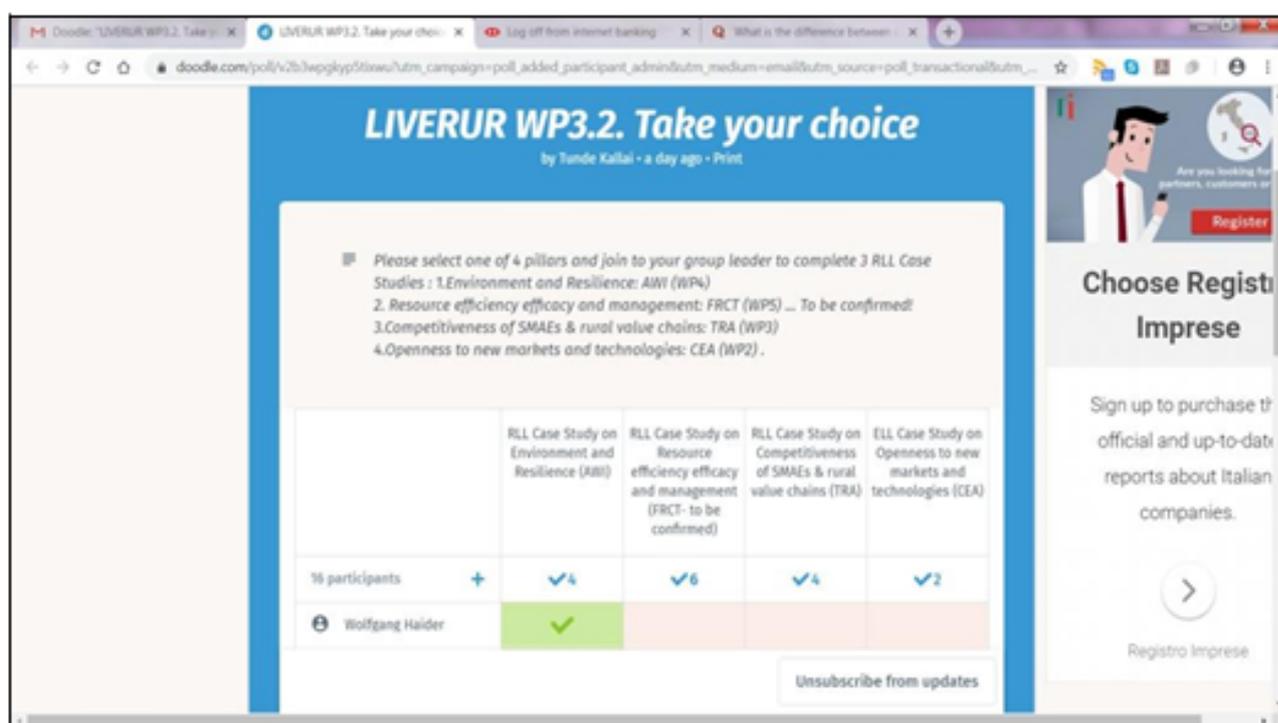


Figure 8. DOODLE poll (Link: <https://doodle.com/poll/v2b3wpgkyp5tixwu>)

Final results of the votes on 02nd of January 2019 reveal the following list of group members involved in each of the 4 selected thematic working groups. (see the List in Annex 2).

<b>1.Environment and Resilience (Team leader: AWI)</b>	<b>2.Resource efficiency efficacy &amp; management (Team leader: FRCT)</b>	<b>3.Competitiveness of SMAEs &amp; rural value Chains (Team leader: TRA)</b>	<b>4.Openness to new markets and technologies (Team leader: CEA)</b>
9	6	12	5

The group leaders have contacted the group members. The working teams collaborated by email exchange and by GoToMeeting or Skype Telco.

**Subtask 4. Select the most appropriate 3 RLL Cases in your domain: Select the best case / examples from T3.1 Rural Living Lab database and beyond (see the WP leader proposition below).**

RLL_X_Case study	1.Environment and Resilience (Team leader: AWI)	2.Resource efficiency efficacy & management (Team leader: FRCT)	3.Competitiveness of SMAEs & rural value Chains (Team leader: TRA)	4.Openness to new markets and technologies (Team leader: CEA)
RLL_1_Case Study	1.1.2.Habitat Living Lab (Brazil)	2.1.2.CISA-Victoriaville: l' ARTERRE Living Lab (Canada)	3.1.2. ZumaiaLab (Spain)	4.1.2. Laura Living Lab (France)
RLL_2_Case Study	1.2.2.Paradies Südburgenland (Austria)	2.2.2. Madonie Living Lab (Italy)	3.2.2. I-Danha Food Lab (Portugal)	4.2.2.Digital Villages (Germany)
RLL_3_Case Study	1.3.2. Arche Noah (Austria)	2.3.2. AcadieLab (Canada)	3.3.2 SmartRural Living Lab (Portugal)	4.3.2. PA4ALL – the Living Lab in Precision Agriculture (Serbia)
RLL_4_Case Study		2.4.2. TEZIO TRASIMENO (Italy)		

Table 4. Proposed RLL Case Studies by the 4 main themes.

**Subtask 5. Follow the step-by-step methodology for the case studies on the circular economy**  
**Subtask 6. Fill it up 3/3 RLL Case studies templates (Step 1: RLL Case Study on Analysis of needs, problems & market survey & Step 2: RLL Case Study on Transition to the circular economy survey) Deadline: 20th of January 2019.**

**Subtask 7. First Draft of D3.2. Deadline: 22nd of January 2019**

**Subtask 8. Peer review of D3.2. Deadline: 28th of January 2019**

**Subtask 9. Final version of D3.2 . Deadline 30th of January 2019.**

**Subtask 10. Submission of D3.2 Deadline: 31th of January 2019.**

## 2.3 RLL case studies templates : instructions

**Instruction for the working group leaders and group members:**

1. Please read the Guideline of Step-by-step approach.

2. Please work further on the same 3 Rural Living Lab Cases , which have been analyzed in T3.2.1 Rural Living Lab cases ( RLL Case Study No 1, No2 and No3) based on the selected domains : **Environment and Resilience, Resource efficiency – efficacy and management, Competitiveness of SMAEs & rural value chains, Openness to new markets and technologies**

3. Send back the 2 x 3 RLL Case studies to the task leader TRA . Note: deadline is 20th of January 2019.

4. Please use the proposed structure of the file names in order to create a standardized data and document structure (to be added to the RLL Database of T3.1. (see the example of standardized file names /groups/ RLL Cases : needs analysis and transition to circular economy.

Example of standardised file names for RLL Case Studies documents, please save your files by this example.

#### 1.1. Environment and Resilience (Team leader: Klaus/AWI)

RLL\_1.1.1.\_Case Study on Needs

Title:

RLL\_1.1.2.\_Case Study on Needs

Title:

RLL\_1.1.3.\_Case Study on Needs

Title

RLL\_1.1.1.\_Case Study on Transition to circular economy

Title:

RLL\_1.1.2.\_Case Study on Transition to circular economy

Title:

RLL\_1.1.3.\_Case Study on Transition to circular economy

Title

#### *More comments:*

A step-by step approach on transition to the circular economy was developed by Circular Impact H2020 project and adapted to the Circular Rural Living Lab cases by **LIVERUR** WP3 leader, TR Associates:

The main characteristics of this approach are:

- It is based on overall framework.
- It distinguishes physical and economic flows.
- It has an emphasis on indicators.
- It has an emphasis on policy options and policy evaluation.
- It distinguishes between potentials and conditions, i.e. conditions that have to be fulfilled in order to realize the potentials.
- Policy options can be derived from these conditions.
- An explicit step for a broader perspective is incorporated in the case studies, especially on alternative innovations

The structure of the case studies fits within an overall framework of **LIVERUR** project.

## CONCLUSIONS

All 26 RLL Case Studies demonstrates how important is to pose the fundamental question: what alternatives are relevant in the circular rural - rural innovation?

If the problems are solved through new technologies/processes/services that become obsolete when the rural economy becomes more circular, investments in these new technologies, as well as the capital and human-capital investments, may become stranded assets. Therefore, taking a broad perspective for each analysis is important.

With respect to Living Lab methodology, the stepwise approach helps to ask the right questions, follow the user driven innovation process and as mentioned before, in particular the question concerning the available alternatives is a useful thought exercises/pilots in the targeted territories.

Additionally, tracking causal links between T3.2.1, T3.2.2 and T3.3. , a detailed scenario analysis of the collected 26 case studies will be the next important activity in T3.3 by the same co-creative team-working.

In order to make this possible it is important to keep all case studies as simple as possible and simulate all different components in possible scenarios as Circular Rural Living Labs: this will be built on further analysis of all 26 Case Studies, more specifically the T3.2.1 – each RLL as a transition in the circular economy in T3.3.

Three/four possible scenarios in each thematic fields (*1.Environment and Resilience, 2. Resource efficiency efficacy and management, 3.Competitiveness of SMAEs & rural value chains, 4.Openness to new markets and technologies*) will be chosen to modelling the future dynamics of the circular rural economy through the future Rural Living Lab environments.

**The filled 13 “T3.2.1 RLL Case Studies about Needs” are attached as Annex 5. (132 pages), the filled 13 “T3.2.2 RLL Case studies on transition to the circular economy” are attached as Annex 6 to the Deliverable (33 pages), Total: 26 templates (by separate files).**

## REFERENCES

McGraw-Hill, Inc. Handbook of Water and Wastewater Treatment Technologies, Water Quality and Treatment, Fifth Edition. American Water Works Association, 1999. Print.

K. R. Rao. Energy and Power Generation Handbook Established and Emerging Technologies. American Society of Mechanical Engineers, 2011.

Nicholas P. Cheremisinoff, Ph.D. Handbook of Solid Waste Management and Waste Minimization Technologies. Elsevier, 2002.

Ehsani et al., CIGR Handbook of Agricultural Engineering Transportation Technologies for Sustainability, edition 2013.

Edgar Hertwich, Michael Katzmayer, Examples of Sustainable Consumption: Review, Classification and Analysis, NTNU Program for Industrial Ecology Programme, Report no: 5/2004.

International Commission of Agricultural Engineering (CIGR, Commission Internationale du Génie Rural). Handbook of Agricultural Engineering (A collection of agricultural engineering reference material to the data of publication of more than 190 authors from around the world).

Aure Adell, Ana Alcantud and Bettina Schaefer (ECOI), EUPOPP Work Package 1, Deliverable 1.3: Sustainable Consumption, Strategies in the European Union, Final Draft, April 2009.

Cameron Allen, A guidebook to the Green Economy, Issue 3: exploring green economy policies and international experience with national strategies, UN Division for Sustainable Development, November 2012.

Ecoinstitut Barcelona, EUPOPP (Policies to promote sustainable consumption patterns), work package 1, deliverable 1.3: Sustainable consumption strategies in the European Union, April 2009.

Ehsani, Mehrdad, Wang, Fei-Yue, Brosch, Gary L. Transportation Technologies for Sustainability, Springer New York Dordrecht Heidelberg London, 2013.

De Serres, A., F. Murtin and G. Nicoletti (2010), "A Framework for Assessing Green Growth Policies", OECD Economics Department Working Papers, No. 774, OECD Publishing, <http://dx.doi.org/10.1787/5kmfj2xvcmkf-en>

Alain de Serres, Fabrice Murtin and Giuseppe Nicoletti, Framework for Assessing green growth policies, Economics Department, OECD Working Papers No.774,

OECD (2013), Policy Instruments to Support Green Growth in Agriculture, OECD Green Growth Studies, OECD Publishing.

OECD (2012c), Water Quality and Agriculture: Meeting the Policy Challenge, OECD Studies on Water, OECD Publishing.

Joanneum Research (WP leader), APRAISE project, D3.1: Taking stock of environmental policies and existing interactions, December 2012.

Territorial Potentials for a Greener Economy, GREECO project, Applied Research 2013/1/20, Vol. 5. Policy options and recommendations, ESPON & TECNALIA, 2012.

# ANNEXES

## ANNEX 1: Rural Living Lab template for use case analysis

### LIVERUR Rural Living Lab Case study Template to T3.2

#### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of green solution
- Distribution / installation of green solution
- Adoption of green solution

#### Case Study Description

**Short pitch of the solution** *(One-sentence summary of the case study)*

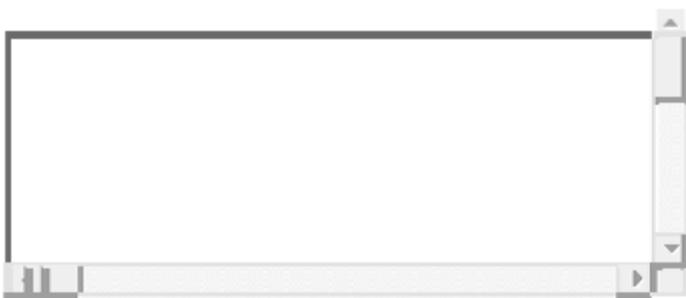


## Description of the case study

A possible outline for a "green case study" to capture necessary information could be the following:

1. *Background* (general information setting the landscape of the green initiative/solution/action);
2. *Reasoning* (why did your organization undertake this green solution?);
3. *Process* (what steps were followed in order to implement and maintain the green solution?);
4. *Effects/Results* (what were results/effects observed from the implementation of the green solution? How does the green solution benefit the environment?);
5. *Facilitating factors* (what factors enabled this good practice to take place?);
6. *Barriers/challenges* (what barriers/challenges did your organization face?);
7. *Lessons learnt* (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)

The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.



**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.**



- Other
- Green Business Model
- Other (please specify)

**What does the featured solution contributed to?**

- Environmental Protection
- Resource Efficiency
- Protection of Public Health
- Compliance with Regulatory Requirements
- Other (please specify)

**Which sector does the case study belong to?**

- Materials (e.g. bio based materials, building materials, etc.)
- Industrial Processes
- Energy Production
- Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)
- Agriculture and Fisheries
- Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)
- Waste Treatment and Recycling
- Transportation
- Buildings
- Hospitality
- Other (please specify)

**How would you further categorize the sector for Materials?**

- Bio-based Materials
- Nano-materials
- Glass Materials
- Chemical Materials
- Building Materials
- Ceramics
- Polymers
- Biodegradable Products
- Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- Alternative Energy
- Other (specify)

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels
- Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management

- Waste Water Treatment
- Hazardous Waste Management
- End of Life Product Recovery
- Material Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design
- Building Automation
- Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment****Maturity of the solution**

- Available
- Emerging
- Demonstrated in practice

**Financing**

- Private Funds
- Subsidy
- Bank Loan
- Third Party Financing
- Other

**Investment costs** (*Turn - key costs*)**Operating costs** (*Operational and maintenance costs*)**Emission Reductions** (tones/year, specify if otherwise)**Energy Consumption Savings** (kWh/year, specify if otherwise)**Water Consumption Savings** (tones/year, specify if otherwise)**Material Consumption Savings** (tones/year, specify if otherwise)**Total Waste Avoided** (tones/year, specify if otherwise)**Technical and Human prerequisites**

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in- house expertise required for the implementation of the solution.*

**Regulatory framework prerequisites and constraints**

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

**The Rural Living Lab that adopted the green solution****Name of the Rural Living Lab**

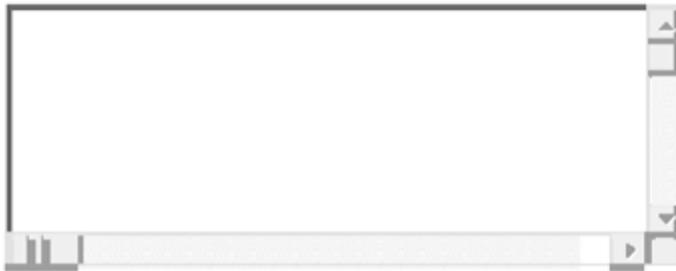
**Description of the RLL** *(Please shortly include some key information of the company)*

**Upload the logo of the RLL (if any)**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the RLL****Location****The SME/stakeholder that provided the green solution****Name of the SME/stakeholder**

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*



**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

**Location**

#### Data Protection

- The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
- Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the green economy in rural areas.

## ANNEX 2: GUIDELINE TO STEP-BY-STEP APPROACH STRUCTURING THE RLL CASES ON TRANSITION TO THE CIRCULAR ECONOMY (T3.2.2. RLL CASE STUDY ON TRANSITION TO THE CIRCULAR ECONOMY TEMPLATE)

### Step 1: Defining the baseline

This step will give an overview of the existing situation, including the context and the current (linear) business case. The current business case is called the baseline. Both the context and the current business case are presented in a descriptive manner.

Part of the context may be: why is this case study chosen, is resource depletion a problem nowadays or foreseen in the near future, are emissions a problem, are there social or environmental issues at stake, etc.

In defining the baseline, it is important to describe current inputs, outputs and processes, and expected changes in the (near) future, i.e. without the new business case. Which investment opportunities would be realized without specific policy measures to stimulate the circular economy?

### Step 2: Defining the new business case

This step will give an overview of the new business case in a descriptive manner. It is described in terms that are later useful for estimating the impacts on society.

In defining the new business case, it is important to describe why it fits within the idea of a circular economy. Therefore, how does the business case make use of (one or more of) the general principles of the circular economy. Furthermore, what are the expected changes in the business model? Changes in the business model are described along three aspects:

- Do the inputs needed for the process change, including labour (And where they are bought or hired)?
- Does the process change (e.g. more energy efficient)?
- Do the outputs of the process change (products, waste streams, emissions)? Does the use value of the finished products by users change (e.g. energy efficiency)?

Furthermore, which enabling factors play a major role in this business model? And are there barriers that influence the business model negatively? Here a distinction may be made between potential of the business case and conditions under which these potentials may be fulfilled.

Finally, in which phase of development is the business: is it operative, is it in a pilot phase, or is it in business for a longer time already. What are expected future developments, and what is the expected situation when the transition is completed. Important expected future developments may be:

- Expected future improvements in technology
- Expected economies of scale in the future. (Or diseconomies of scale: is it a niche market which is served and is there a possibility that the market becomes satiated by oversupply or consumer disinterest?)
- In case of upscaling the business model, how does it influence either the positive or the negative impacts on society?

### Step 3: Changes in the key sector

This step provides quantitative information on changes in the key sector or chain, due to the introduction of the new business case.

The main questions are: What are expected changes in the operational processes and what are economic changes in the key sector? What is the difference between the new business case and the baseline in material use, emissions, workforce needed, financial changes, etc.?

Step 3a: Describe as far as possible (quantitatively) changes in materials, emissions, employment, investments, output, trade, etc. due to the new business model. Are there expected savings, e.g. on materials, compared to the baseline. Or is a new product introduced?

Step 3b: Describe as far as possible (quantitatively) the private cost-benefit analysis of the new business case, including consequences for the price of the product produced. It is important to know to what extent it will be developed automatically because private benefits are higher than private costs and the return on investment is higher than in the baseline. And if not, what is the problem that must be solved?

What is the expected situation after the transition has been completed, both for the operational processes and economically?

### Step 4. Expected effects on other parts of the economy

In this step, a broader view on the effects of the new business case is investigated by taking into account other parts of the economy. This is important since we will not only study direct effects in the key sector or key chain, but also indirect effects in other parts of the economy.

Changes in one sector will often effect changes in other sectors. First, inputs and outputs of the key sector are demand and supply for other sectors, and therefore will influence the other sectors. One of the inputs is labour, influencing employment and labour income. Second, the circular alternative replaces other processes such as mining. A decreased demand of primary resources will influence international trade. Third, the circular alternative may influence markets and transport, so for example the harbour may have to adjust to changes of commodity flows as a consequence of the development of the circular economy. As far as possible, all these effects should be described in the case study.

If the circular alternative increases national income, this income will be spent and therefore demand of polluting or resource using commodities may increase. This may reduce the effect of the circular economy on resource savings and pollution. However, this so-called rebound effect will be the same for all case studies, and therefore it is not necessary to analyse this in the context of the case studies except when special effects are to be expected.

In summary, it is important that the case study provide an indication on employment effects, changes in trade and changes in product prices for all sectors that are influenced by the introduction of the circular business case.

### Step 5: The impact on society

In this step, we analyse the impact of the new business model on society, which is the essence of our research. The described impact should be the sum of the direct and indirect effects described in the steps before.

When we know the changes in the key sector and changes in other parts of the economy, we are able to say something about the impact on society. Especially since we made a distinction, in Step 3

and 4, between material flows (including emission), financial consequences and consequences for the work force.

Furthermore, the flow chart, optional in Step 3, will be of use in this part of the research.

The questions to be answered in this part of the research are: How does the new business case have an influence on 1) the environment, especially on the use of resources and on emissions, 2) on the economy, especially on productivity, investment, and employment, and 3) what is the social impact, especially on employment, health, and inequality.

The impacts must be defined in a specific manner. Concerning employment it is important to know whether the increase or decrease of employment takes place in an area which relatively high unemployment rates or not, e.g. the difference between cities (with harbours) and the countryside.

A distinction between regions and skill levels is essential. For example, in the case of phosphate recycling employment may be generated in some regions with relatively high unemployment for low skilled labour, while for example activities in the harbour, probably a region with low employment, may be reduced. What are the skill levels for the people involved and is this the type of labour that is for some reason unemployed?

Again, describe the situation after the transition has been completed.

### **Step 6. Are alternatives available?**

Often parallel developments take place. In this step, the question is whether the business case that is elaborated on is actually the best answer to the problem that has to be solved.

Even if a new business case seems to work out well compared to the baseline, better alternatives may be available. For example, it may be that harvesting phosphorus from sludge through precipitation has net social benefits, but investment in this technique with a recovery rate of only 15% may prevent investments in more efficient techniques. So, it is always important to evaluate all relevant opportunities to solve a problem, and not only to compare the new business model with the current business model.

So the question here is: which alternatives are developed which may become competitive with the business case described in the case study? And are these alternatives expected to become more profitable in the future? Or more sustainable?

### **Step 7: Policy options**

In this step, insights gained in the previous steps are used to formulate policy options in order to facilitate positive effects on society to the max.

The understanding we won in the steps described above is used here to define the key obstacles for the business case, and the policy options that could address those obstacles.

A distinction may be made between enabling factors and barriers. For example, which enabling factors could be supported by policy makers, such as research and innovation policies, supporting economic reorganization, or education?

Institutions which once were useful in the linear economy may have become an obstacle for the transition towards a circular economy. Which barriers could be decreased by policy makers, e.g. legislation? For example, in the case of phosphate recycling, it may be that it is only profitable if the

price of fertilizer would include also prices for greenhouse gas emissions and externalities in fossil fertilizer production in mining.

### **Step 8. Overall conclusions**

This step should give an overview of the results of the case study. The business case is described, and how it fits within a circular economy. Furthermore, the expected economic, environmental and social impact of introduction of the business case is described. Finally, policy recommendations are formulated.

## ANNEX 3: LIST OF 4 TEAMS & MEMBERS BY THE DOODLE POLL

### Poll "LIVERUR WP3.2. Take your choice"

<https://doodle.com/poll/v2b3wpgkyp5tixwu>

	RLL Case Study on Environment and Resilience (AWI)	RLL Case Study on Resource efficiency efficacy and management	RLL Case Study on Competitiveness of SMAEs & rural value	ELL Case Study on Openness to new markets and technologies (CEA)
Tunde Kallai			OK	
Françoise Cadiou				OK
Laura Martínez		OK		
Martina Occelli		OK		
SOGESCA - Marco			OK	
Natália Silva		OK		
Paolo Burini		OK		
Klaus Wagner (AWI)	OK			
Inga Berzina (ZSA)		OK		
Mohamed Nejib Bejar				OK
Panagiotis Koutoudis (IED)			OK	
Ahmet Sever (ZEKA)			OK	
Meissa (ADRI)	OK			
Stefano E35 Foundation	OK			
Wolfgang Haider	OK			
Utku ÇİL			OK	
Sigrid Egartner	OK			
Argene Superina (UL)			OK	
François GROELL				OK
Karel Charvat				OK
Jean Noel Chausse		OK		
Julia Niedermayr (AWI)	OK			
Heidi Grüneis (AWI)	OK			
David (UCAM)	OK			
Radana Saskova (UHLAVA)			OK	
Ivo Sasek (UHLAVA)			OK	
riadh bezzaouia			OK	
Thomas, Andrea (RMB)	OK			
Caterina&Jelena (CESIE)				OK
Jiri Hamhalter (UHLAVA)			OK	
Pavel Vondracek (UHLAVA)			OK	
Kristýna Cerbová (Wirelessinfo)			OK	
Count	9	6	12	5

## ANNEX 4: “CASE STUDY” AND “USE CASE “ – A TAXONOMY DESCRIPTION

*There are a lot of ways how the narratives can help engage the stakeholders . Do you know what they are, and are you using them correctly in your daily practices?*

So now that we are going through the “Case Study “and “Use Case” examples, what’s the difference between them ? Here’s what we think are some of the key differences:

- A **Case Study** is a story about a situation or event that contains a problem or issue, usually a real situation. The case study usually contains information about the problem PLUS information about how the situation was addressed, and the results of the actions taken to solve the problem. For example, one might use a case study from Apple computers pertaining to leadership by describing the problems Apple faced with their original leadership, then discuss what was done (hiring a new CEO, Scully) to the results.

After reading the case study, learners might be asked to analyse the case, in essence, after the fact.

In summary: User stories/Case studies are about needs. When you write a user story, what you’re describing is a “raw” user need. It’s something that the user needs to do in his day-to-day job. If you never build any product/service for your users, then that need will still exist!

**User stories are easy for users to read**. When you write a user story, what you’re concentrating on is writing something that anyone can understand, in the language of the users. We all know that developers have a lot more patience for talking about details of the software they’re building than users do, which is why user stories have to be brief. A user story needs to express a complete thought in just a couple of sentences. (That’s also why it’s good to put them on index cards: somehow, that makes it clearer that it’s self-contained and independent of the other user stories.)

- Use cases/Scenario describes a particular application for the product/service, often explaining exactly how it is done and why the product is the best for the job. A project developer/partner with stakeholders who needs to build working product/service should be able to read a use case and get a good sense of what the new product/service needs to do. It typically has a lot of detail, and describes everything that the developer needs to build in order to meet the user’s need. That’s why it needs to have a lot more detail, and be clear and unambiguous.

Use cases describe a complete interaction between the components and users (and possibly other systems). When you’re doing use case analysis, what you’re doing is designing a functional solution that meets the users’ needs. It needs to be something that developers can implement. It’s possible that one user story could spawn several use cases. And when you combine all of your use cases into one use case document, you’ll end up with a complete description of every interaction between the user and the software that you’re planning on building. And if your software has to interact with multiple systems, you may end up treating those other systems as actors in your use case. Use cases try to represent the different scenarios where the user interacts with the system, so Use cases are a way to represent a specific set of scenarios.

## ANNEX 5: T3.2.1. Rural Living Lab Case Studies About Needs

RLL_X_Case study	1.Environment and Resilience (Team leader: AWI)	2.Resource efficiency efficacy & management (Team leader: FRCT)	3.Competitiveness of SMAEs & rural value Chains (Team leader: TRA)	4.Openness to new markets and technologies (Team leader: CEA)
RLL_1_Case Study	1.1.2.Habitat Living Lab (Brazil)	2.1.2.CISA-Victoriaville: l' ARTERRE Living Lab (Canada)	3.1.2. ZumaiaLab (Spain)	4.1.2. Laura Living Lab (France)
RLL_2_Case Study	1.2.2.Paradies Südburgenland (Austria)	2.2.2. Madonie Living Lab (Italy)	3.2.2. I-Danha Food Lab (Portugal)	4.2.2.Digital Villages (Germany)
RLL_3_Case Study	1.3.2. Arche Noah (Austria)	2.3.2. AcadieLab (Canada)	3.3.2 SmartRural Living Lab (Portugal)	4.3.2. PA4ALL – the Living Lab in Precision Agriculture (Serbia)
RLL_4_Case Study		2.4.2. TEZIO TRASIMENO (Italy)		



### T3.2. - 1.1.1. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience**
- 2. Resource efficiency efficacy and management**
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

What was/is the role of your organisation in the featured case study?

- Production of green solution
- Distribution / installation of green solution
- Adoption of green solution

#### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)



#### Description of the case study

*A possible outline for a "green case study" to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the green initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the green solution? How does the green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your organization face?);*
- 7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)*

#### D3.2. Report of "Mapping the living lab technique"

The Habitat Living Lab is a social network ecosystem for Research & Development, Education and Continuing Education, which has the purpose to develop and apply environmental friendly technologies in collaboration with low-income communities, to improve the conditions of urban housing and rural properties, aiming to contribute to supply the basic human needs of adequate housing, clean water, healthy food, renewable energy and proper treatment and disposal of waste. Living Lab is located in Vitoria, in the state of Spirito Santo, in the Southeast region of Brazil. Particularly, there's a region in Vitoria, where the majority of people are in vulnerable economic, social, cultural and educational conditions, known as Territorio do Bem.

The LL Habitat was the result of a previous relationship between the University, the non-governmental organization Associacao Ateliê de Ideias and the community of Territorio do Bem. Non governmental organizations, university groups or labs, communities, big and small companies and independent consultants form the Living Lab network.

The Association Ateliê de Ideias since the beginning of its operation works forming partnerships with many organizations. Two projects promoted an approximation between the Association Ateliê de Ideias and Universidade Federal do Espirito Santo (UFES). Three of UFES' unities became partners with the association: The Architecture and Urbanism Reference Office who participates by giving technical assistance and production of social technologies for construction and reform of low-income families' houses; The Laboratory Testing of Building Materials (LEMAC) who gives technical support to the production of ecologic bricks and the department of Production Engineering supports the manufacturing process at the brick factory.

The implementation of a Community Bank was the first social innovation. The second important innovation was the formation of the Forum Comunitario do Territorio do Bem where the community leaders get together to discuss and propose solutions to their problems and demands. The association then began the Program "Bem Morar" that includes housing credit and technical assistance for the houses construction and reform using eco-friendly technology. Then LabTAR was created in order to support the Living Lab Habitat actions. It was established to develop technological and socio eco-friendly solutions to improve housing conditions of low income population, supported in environmental education and people's participation. LL Habitat's demanded the creation of a new structure to manage the innovation networks operations that was consisted by supporting its new communications processes, perform knowledge development's activities about innovation models. LabTar is today next to the Association Ateliê de Ideias the fundamental link of support of the LL Habitat. LabTAR is a multidisciplinary environment that reunites competences in the areas of innovation management, knowledge management, projects management and information design and it's geared towards the practice and reflection of projects in networks. Furthermore, to support collaboration in the network two projects have been developed in LabTAR in the area of knowledge management: the site itself and the LL Habitat 1.0. The Content Management System that is LL Habitat's own site and presents the project but also allows other parts to share information and keep the work content in a way that all may access and collaborate. There is also Habitat 1.0 which is a system of social networks based in textual information whether email projects and texts that contain the names of LL's partner and from this textual information Habitat 1.0 generates a network showing who collaborate with whom. The main goal at the lab is giving support to collaborative work or to collaborative network. Therefore, this social network helps to understand how the work is today and gives important information to work in a way to improve the collaboration.

Mosaic is another technological innovation project developed inside LL Habitat which aims to create a social platform to build collaborative solutions. This project is coordinated by LabTAR. Proserpi, a Microsoft Solution Center in Vitoria leads the project's development. The community in Territorio do Bem is involved as a test field in the platform. Inside the LL Habitat had been hard to interact with project's users, so mosaic project allowed to make this interaction come true. This has proved how users driven are important in innovation projects.

Another project at LabTAR is the mini Factory of Building Blocks from Construction Waste (MMF project). In this project, the user perspective is being considered in the business models. Actors involved in this project are academics, TU Berlin and the Federal Institute of Espirito Santo, an industry that manufactures the equipment



and MORAR construction Company that provide the building waste and the non governmental actor Association Ateliê which has workers that will use the equipment to manufacture the blocks.

LabTAR began its activities in 2010, with resources from Fapes and Ufes. In it collaborate teachers, students and alumni of UFES, aiming at the development of technologies to support collaboration networks such as network management technologies and computerized systems.

The management of LL Habitat is the responsibility of the Laboratory of Collaboration Networks Support Technologies (LabTAR), which combines skills in Information Design, Knowledge Management, Innovation Management and Project Management. One of its main tasks is to manage the flow of information on projects of interest to LL Habitat.

As Habitat Living Lab has crosswise fields of action, focusing on the housing issue, it is not restricted to one technology, product or phase of a product life cycle. At the present moment its activities are focused on clean technologies for construction of houses: soil-cement brick, architectural design that include principles of environmental sustainability and solar panels for water heating at low cost.

Low income communities located in Vitoria, in the state of Spirito Santo, in the Southeast region of Brazil. Particularly, there's a region in Vitoria, where the majority of people are in vulnerable economic, social, cultural and educational conditions, known as Territorio do Bem. However, they are expanding their field to other close areas, like Cariacica.

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.**



What was/is the type of the green solution?

**Technology**

- Raw Materials
- Pre-fabricated Structures
- Chemicals and Compounds
- Products (Goods) Machinery**
- Electrical Equipment
- Electrical Power Generation Equipment
- Automation (i.e. how equipment is used)
- Infrastructure
- Information Technology
- Other (please specify)

**Service**

**Education**

- Behavioural Patterns Carbon
- Social Responsibility
- Other (please specify)

**Organizational Methods**

- Development and Implementation of Environmental Management Systems
- Environmental Auditing
- Carbon Footprint Analysis and Monitoring
- Other (please specify)

**Technical Consulting**

**Technology Assessment**

- Resource Consumption
- Audit and Analysis Waste Stream Analysis and Waste Management

**Restoration and Rehabilitation**

- Other (please specify)

**Engineering Design / Installation Regulatory Compliance**

- Environmental Impact Assessment
- Risk Assessment
- REACH, CLP



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

**Environmental Protection**

**Resource Efficiency**

**Protection of Public Health**

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

**Materials (e.g. bio based materials, building materials, etc.)**

Industrial Processes

Energy Production

**Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)**

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)

**Waste Treatment and Recycling**

Transportation

**Buildings**

Hospitality

**Other ( collaborative platform, social sector)**

**How would you further categorize the sector for Materials?**

**Bio-based Materials**

Nano-materials Glass

Materials Chemical

**Materials Building**

Materials Ceramics

Polymers

Biodegradable Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency (also water, energy and all other facilities needed for housing)
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization Pest
- and Disease Management Aquaculture
- Other (please specify)
- 

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery
- Material Reclamation**
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design including all building facilities**
- Building Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service Sporting
- events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- 
- Emerging
- Demonstrated in practice**

## Financing

**Private Funds Subsidy, Public private partnership**

**Bank Loan**

Third Party Financing

Other

## Investment costs (Turn - key costs)

## Operating costs (Operational and maintenance costs)

## Emission Reductions (tones/year, specify if otherwise)

## Energy Consumption Savings (kWh/year, specify if otherwise)

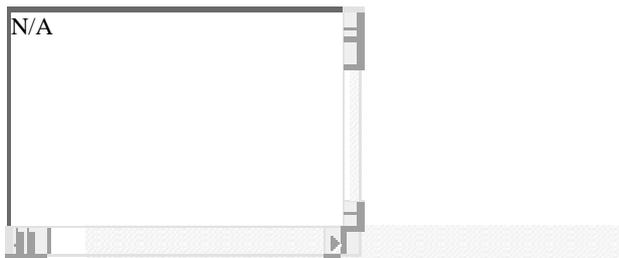
## Water Consumption Savings (tones/year, specify if otherwise)

## Material Consumption Savings (tones/year, specify if otherwise)

## Total Waste Avoided (tones/year, specify if otherwise)

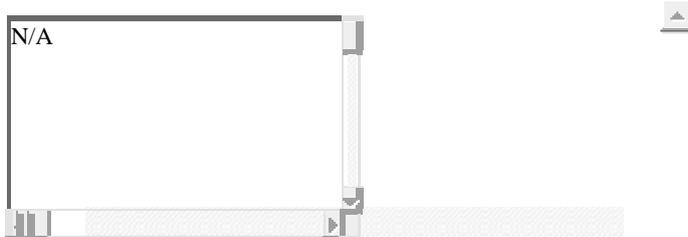
## Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*



### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*



### The Rural Living Lab that adopted the green solution

Name of the Rural Living Lab

**Habitat Living Lab**

Description of the RLL *(Please shortly include some key information of the company)*

See first pages

Upload the logo of the RLL (if any)



Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Contact details of the RLL

[http://web3.ufes.br/habitat/consulado\\_en.html](http://web3.ufes.br/habitat/consulado_en.html)

<http://staging.enoll.org/livinglab/habitat-living-lab>

<http://labtar.ufes.br/ll-habitat/>

Location

**State of Spirito Santo, Brazil**



**The SME/stakeholder that provided the green solution**

**Name of the SME/stakeholder**

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

**Location**

**Data Protection**

**X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**

**X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the green economy in rural areas.



## T3.2. - 1.1.2. LIVERUR Rural Living Lab Case study

### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. **Environment and Resilience**
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

### The main role of your organisation

What was/is the role of your organisation in the featured case study?

**No role**

- Production of green solution
- Distribution/installation of green
- Adoption of green solution

### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

Cooperation of producers, direct marketers farmers, leisure facilities, hotels, hosts to make them more accessible to the general public.

## Description of the case study

*A possible outline for a "green case study" to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the green initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the green solution? How does the green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your organization face?);*
- 7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)*

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

For 14 years now there is the association Southern Burgenland (in Austria, the region consists of three districts, Oberwart, Güssing and Jennersdorf) - A piece of paradise®. The main goal from the very beginning was and still is to make the companies of Southern Burgenland, in particular PRODUCERS, DIRECT MARKETS, FARMERS, LEISURE FACILITIES and HOTELS and HOSTS accessible to the general public. The paradise family consists of about 50 companies from different areas and together they work on the further awareness and development of the Paradiesregion Südburgenland.

The large variety of enjoyment makes the character of the adventure paradise of Southern Burgenland and is reflected in many different member companies. Behind the businesses, people are passionate about the uniqueness of their region and its many assets. Culinary, wine, wellness, sports, landscape and culture inspire guests and visitors and rightfully satisfy the southern Burgenlanders with pride. <https://www.erlebnisparadies.at/betriebe/>

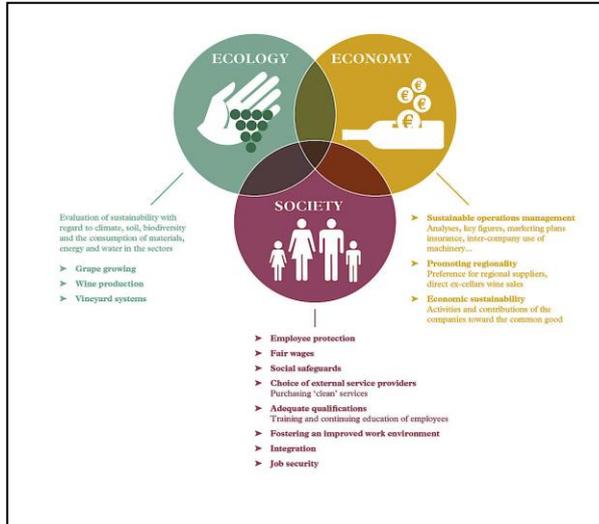
Our trademark - the four-leaf clover. According to legend, Eve took a four-leaf clover from paradise with her and, wherever it is found, it embodies paradise in its own form. For the cooperation, Southern Burgenland represents just such a magical and heavenly place. Not only the landscape and the climate in our region are of particular value, but also the numerous enterprises around the topics culinary, wine, gastronomy and hotel industry, wellness sport and culture. The companies have set themselves the goal of making this paradise accessible through experiences.

The revenues go directly to the companies, which in return pay a commission to the association

In the high-enjoyment region of Southern Burgenland, there are sincere and satisfied people at work, who love to produce tasty and high-quality products in up-and-coming, often family-run businesses. Not every business has to be a "design restaurant". What matters is the overall impression that is made up of the quality of the products, the uniqueness of the company and the individuality of the manufacturers. <https://www.erlebnisparadies.at/produkte/>

The target market is the own region and the nearby cities of Vienna and Graz, regional orientation.

Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.





**What was/is the type of the green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods) Machinery
  - Electrical Equipment
  - Electrical Power Generation Equipment
  - Automation (i.e. how equipment is used)
  - Infrastructure
  - Information Technology
  - Other (please specify)

**Service**

- Education
  - Behavioural Patterns
  - Carbon Social Responsibility
  - Other (please specify)
- Organizational Methods**
  - Development and Impl. of Environm. Management Systems
  - Environmental Auditing
  - Carbon Footprint Analysis and Monitoring
  - Other (please specify)
- Technical Consulting
  - Technology Assessment
  - Resource Consumption Audit and Analysis Waste Stream
  - Analysis and Waste Management Restoration and
  - Rehabilitation
  - Other (please specify)
- Engineering Design / Installation Regulatory Compliance
- Environmental Impact Assessment
  - Risk Assessment
  - REACH, CLP
  -



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

**Resource Efficiency**

Protection of Public Health

Compliance with Regulatory Requirements

**Other : like cooperation to create added value for the participants and the region**

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

**Agriculture and Fisheries**

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)

Waste Treatment and Recycling

Transportation

Buildings

**Hospitality,**

**Tourism**

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Polymers Biodegradable

Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.



**How would you further categorize the sector for Energy Production?**

- Conventional Energy
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management**
- Land Management and Fertilization
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity**
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning) Other
- (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service Sporting
- events
- Other (please specify), cultural events

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- 

Demonstrated in practice



**Financing**

Private Funds

Subsidy

Bank Loan

Third Party Financing

Other

**Investment costs** (*Turn - key costs*)

**Operating costs** (*Operational and maintenance costs*)

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

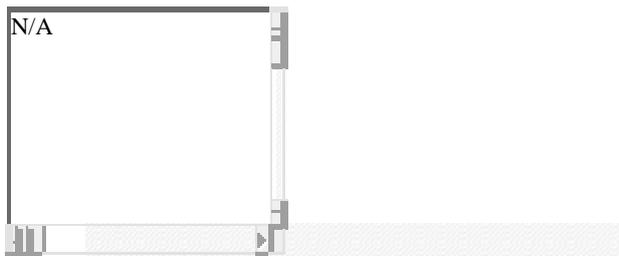
**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

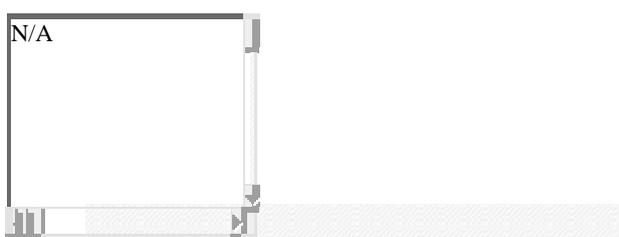
**Technical and Human prerequisites**

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*



### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*



### The Rural Living Lab that adopted the green solution

Name of the Rural Living Lab

**Paradies Südburgenland**

Description of the RLL *(Please shortly include some key information of the company)*

**See first pages**

Upload the logo of the RLL (if any)

Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Contact details of the RLL

<https://www.erlebnisparadies.at/betriebe/>

Location

**Province of Burgenland, Austria**

### The SME/stakeholder that provided the green solution

Name of the SME/stakeholder

Description of the SME/stakeholder *(Please shortly include some key information of the company)*

N/A

**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

**Location**

**Data Protection**

**X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**

**X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the green economy in rural areas.

### T3.2. – 1.1.3. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience**
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

**No role**

- Production of green solution
- Distribution / installation of green solution
- Adoption of green solution

#### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

Arche Noah is a 'seeds saver' association, it acts to preserve and develop the diversity of cultivated plants and set up a "seed network".

## Description of the case study

*A possible outline for a “green case study” to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the green initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the green solution? How does the green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your organization face?);*
- 7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)*

The Headquarters of Arche Noah are located in the small town of Schiltern bei Langenlois (7609 inhabitants) in the northeastern most Austrian state ‘Niederösterreich’ (lower Austria), and approximately 80 km away from the country’s capital city, Vienna. Lower Austria is known for its wine, numerous mountains, lakes, rivers and castles and has a population of approximately 1,6 million inhabitants. The region also shows active agricultural activity with 42% of it area being used for farmland activities.

Arche Noah is a ‘seeds saver’ association. It acts to preserve and develop the diversity of cultivated plants. Among the various activities it offers, it sets up a ‘seed network’ in which hundreds of members of Arche Noah act as private ‘seed savers’ by cultivating endangered varieties in their home gardens and taking permanent care of them. It works together with farmers, citizens and scientist to secure the continuity of diverse plants.

Public and Civic Communities: support the trend towards crop diversity by receiving knowledge in attending seminars and workshops offered by Arche Noah as well as by being facilitated the access to plants and seeds. Actively contributing by storing seeds and cultivating plants.

Public and Regional Authorities: To improve policy coherence in such a way that favors crop biodiversity, Arche Noah stands up for policies that promote biodiversity, ensure nutritious and tasty food and advocate for small scale farming in Europe and beyond. Arche Noah has an office in Vienna and one in Brussels to try to maximize their representation and influence policies. Arche Noah is politically active.

Industry + Farmers (agro-industry): Arche Noah cooperates with organic farmers to bring diversity back into agriculture and markets. A growing number of farmers and producers support the crop diversity market. Small farmers often cannot compete in quantity and yield. Instead, they make a living with crop diversity, their income being based on the quality and diversification of their products.

Academia: Research & Participatory plant breeding. The development of newly adapted crops from genetic resources complements and contributes to the organisation’s goal of satisfying seed users’ needs, while also ensuring the long-term survival of underutilised crops.



Arche Noah acts to preserve diversity of crops in response to the observation that over the last 100 years, the diversity of cultivated plants has dramatically decreased all over the globe due to the industrialisation of agriculture (more than 75% already lost). Arche Noah also states that from today's perspective, it is impossible to say which plant species be important one day and that it is therefore irresponsible to dispose of these crops varieties.

Arche Noah's main way to generate benefits is by offering numerous activities to respond to the loss of agrobiodiversity:

- The organic's visitors garden: located in Schiltern, the garden contains hundreds of rare cultivated plants grown organically. It is open to the public which is mainly constituted of farmers, gardeners, families and individuals interested in the topic. The organic visitors garden also offers guided tours and a shop where visitors can buy a range of organic seedlings, herbs, seeds, as well as specialist literature, gardening tools and accessories.

- The seed bank: it is one of Europe's biggest private collections of cultivated plants, maintaining about 5,500 accessions of rare vegetables and grains.

- The seed network: network made out of Arche Noah's members (approx. 16 000), farmers, organisations and institutions. They multiply heirloom varieties from the Arche Noah seed archive, as well as plants they have gathered in their local area, in their home gardens or fields. The gardeners themselves determine their own level of involvement: beginner, crop guardian, or crop-adopters. Some only save seeds for their own personal use while others cooperate with the seed archive, or offer their expertise in the variety handbook.

- Various events: training, workshops, seminars are offered on a regular basis to ensure transmission of knowledge between the different stakeholder groups involved.

Arche Noah acts to preserve diversity of crops in response to the observation that over the last 100 years, the diversity of cultivated plants has dramatically decreased all over the globe due to the industrialisation of agriculture (more than 75% already lost). Arche Noah also states that from today's perspective, it is impossible to say which plant species be important one day and that it is therefore irresponsible to dispose of these crops varieties.

The association is organized in a democratic way which means all the members (citizens, farmers, researchers) have a vote in selecting the government board of the association. This government board decides the strategic orientation of the association and develops the organizational structures further.

It is internationally oriented. Arche Noah is an Austrian association and its main offices are in Austria (Schiltern and Vienna) but it works closely with Germany, Switzerland and France and the association is also targeting a wider scale evolution. It advocates at the European level in favor of crops diversity.

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*



Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.

Diversifood : the key for future food..(H2020)

[https://www.youtube.com/watch?time\\_continue=47&v=N4m5aee4uUI](https://www.youtube.com/watch?time_continue=47&v=N4m5aee4uUI)





What was/is the type of the green solution?

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods like seeds)**
  - Machinery
  - Electrical Equipment
  - Electrical Power Generation Equipment
  - Automation (i.e. how equipment is used)
  - Infrastructure (seed banks...)**
  - Information Technology
- Biodiversity preservation**
- Service**
  - Education**
    - Behavioural Patterns Carbon Social Responsibility
    - Other, network, information)**
  - Organizational Methods**
    - Development and Implementation of Environmental Management
    - Systems Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
    - Technology Assessment
    - Resource Consumption Audit and Analysis
    - Waste Stream Analysis and Waste Management Restoration and Rehabilitation
    - Other (please specify)
  - Engineering Design / Installation
  - Regulatory Compliance
    - Environmental Impact Assessment
    - Risk Assessment
    - REACH, CLP



- Other
- Green Business Model
- Other (please specify)

**What does the featured solution contributed to?**

- Environmental Protection**
- Resource Efficiency
- Protection of Public Health
- Compliance with Regulatory Requirements
- Other (please specify)

**Which sector does the case study belong to?**

- Materials (e.g. bio based materials, building materials, etc.)
- Industrial Processes
- Energy Production
- Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)
- Agriculture and Fisheries**
- Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)**
- Waste Treatment and Recycling
- Transportation
- Buildings
- Hospitality
- Other (please specify)

**How would you further categorize the sector for Materials?**

- Bio-based Materials
- Nano-materials Glass
- Materials Chemical
- Materials Building
- Materials Ceramics
- Polymers Biodegradable
- Products
- Other (please specify)
- 

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass
- Energy and Waste-to-Energy
- Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management**
- Land Management and Fertilization**
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity**
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- 

**Demonstrated in practice**



**Financing**

**Private Funds**

**Subsidy**

Bank Loan

Third Party Financing

Other

**Investment costs** (*Turn - key costs*)

N/A

**Operating costs** (*Operational and maintenance costs*)

N/A

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

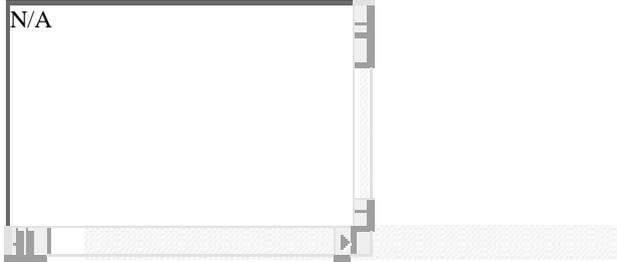
**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

**Technical and Human prerequisites**

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*



**Regulatory framework prerequisites and constraints**

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*



**The Rural Living Lab that adopted the green solution**

**Name of the Rural Living Lab**

**Arche Noah**

**Description of the RLL** *(Please shortly include some key information of the company)*

**See first pages**

**Upload the logo of the RLL (if any)**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the RLL**

**[www.arche-noah.at](http://www.arche-noah.at)**

**Location**

**Province of Lower Austria, Austria**



**The SME/stakeholder that provided the green solution**

**Name of the SME/stakeholder**

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

**Location**

**Data Protection**

**X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**

**X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the green economy in rural areas.



### T3.2.1.- 1.2.1. LIVERUR Rural Living Lab Case study

## LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution**
- Adoption of sustainable/green solution

### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

*A possible outline for a "Rural Living Lab Case Study" to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the RLL initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this sustainable/green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);*

### D3.2. Report of "Mapping the living lab technique"

7. *Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)*

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

1. The Center of Social innovation in Agriculture CISA is situated in Victoriaville between Montréal and Quebec. The mission is to study and conduct applied research projects in the field of social innovation, in order to develop results and solutions of practical relevance to society and the agriculture and agri-food industry that can be transferred to the private and public sector. CISA is formed in June 2009 to support producers and the agricultural community in developing new practices that benefit to the general public. CISA is recognized as a college centre for the transfer of technology in the domain of innovative social practices by Quebec's Ministry of Education, recreation and sports. This LL is oriented for the beginning,

on the collect, the recovery of agricultural plastics.

The RLL gather tree partners in the beginning:

- GESTERA which is a group of 24 local authorities with the bigger one which is Victoriaville
- Gaudro an industrial action of Québec
- and CISA

2. Well understanding the problems of people and of farmers first, co-construction of different scenarios, experimentation, What are the needs quantitatively and qualitatively, test and improving the possible solutions, integration of politics in the decision, ex: for plastic wastes 3 choices of possible scenario, the final users must have to be associated to the elaboration of sceneries, ex; burning plastic? Put in soils the plastics? or third one collect at home and in the farm the plastics, collect take time for farmers so collect is organizing with big containers, for efficacy follow-up the collection with a frontal charger. Actually the cost of recovery for the farms is nearly zero. The collector of Plastic GAUDRO, recovery information's in real time by ECT and work on it with researchers.

3. At each step end-users are concerned, understand the problems, create the scenarios, choose the scenario, experimentation, to transfer this knowledge by ECT and by video for collecting fast returns in order to sort, and motivated stakeholders.

4. Now days we must have to transform the plastics recovery, to transfer and export plastics to other areas of Quebec and then to China first of all, or create a local industry of transformation of plastics in logical local economy. This sector of processing is failing actually. 60t plastics collected in year 1, collect is going on to 120 to 150 t in 2018.

5. The facilitating factors Each LLs members role + public founds)

- 1/CISA: is the support of the living-lab. CISA provide services, -like establishing a relationship with the customers to understand their specific needs, designing and undertaking case studies and pilot projects to study the targeted issues, conducting rigorous analyses, transferring the knowledge acquired...
- 2/Gestera 24 local authorities in the state of Quebec
- 3/Agricultural Union of farmers: in the beginning 35 farms dairy farms, cattle farms, crops farms, truck farming, contribute to the idea, participate to scenarios...
- 4/ Gouvernement du Quebec: bring 80% of research founds

6. Two years in the beginning then with the confidence of the actors two new years are expected in relation to the needs that the LL can manage to emerge and to do convergent with the problems and the solutions linked. There is a risk at that moment when new actors are interested of new problems that you didn't know before.

7. The experimentation of the LL about recovery of plastics is creating imbalances and tensions, then it's necessary not to collect too fast too much plastics, in order to create an industry of treatment which cost is always 5 to 10 millions of dollars.

**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study**

Some problems (row of the below) and proposed solutions (top row) associated with the recycling process for agricultural plastics

How to make ecological tiles? Add Recycled plastics to glass and porcelain, for example grocery bags



Principles of social innovation in agricultural recycling according to CISA (poster)



<http://www.cisainnovation.com/> and <https://web.facebook.com/cisainnovation/>



**What was/is the type of the sustainable/green solution?**

Technology

- Raw Materials
- Pre-fabricated Structures
- Chemicals and Compounds Products (Goods)
- Machinery
- Electrical Equipment
- Electrical Power Generation
- Equipment Automation (i.e. how equipment is used)
- Infrastructure
- Information Technology
- Other : agricultural practices

Service Education

- Behavioural Patterns Carbon
- Social Responsibility
- Other (please specify)
- Organizational Methods
  - Development and Implementation of Environmental Management Systems
  - Environmental Auditing
  - Carbon Footprint Analysis and Monitoring
  - Other (please specify)
- Technical Consulting
  - Technology Assessment
  - Resource Consumption Audit and Analysis
  - Waste Stream Analysis - Waste Management
  - Restoration and Rehabilitation
  - Other (please specify)
- Engineering Design / Installation
- Regulatory Compliance
  - Environmental
  - Impact Assessment
  - Risk Assessment



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste

Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials Nano-

materials Glass Materials

Chemical Materials

Building Materials

Ceramics Biodegradable

Products

Polymers

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



Alternative Energy

Other (specify)

**How would you further categorize the sub-sector for Alternative Energy Production?**

Wind Energy

Solar Energy

Geothermal Energy

Tidal Energy

Bio-fuels Biogas

Biomass Energy and Waste-to-Energy

Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

Energy Efficiency

Fuel Efficiency

Raw Material Efficiency

Water Efficiency

Land/Soil Efficiency

Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

Food and Feed Management

Land Management and Fertilization

Pest and Disease Management Aquaculture

Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

Air Pollution Prevention and Mitigation

Water Pollution Prevention and Mitigation

Soil Pollution Prevention and Mitigation

Protection of Biodiversity

Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning) Other
- (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- Demonstrated in practice

### Financing

- Private Funds
- Subsidy
- Bank Loan
- Third Party Financing
- Other

### Investment costs *(Turn - key costs)*

### Operating costs *(Operational and maintenance costs)*

### Emission Reductions (tones/year, specify if otherwise)

### Energy Consumption Savings (kWh/year, specify if otherwise)

### Water Consumption Savings (tones/year, specify if otherwise)

### Material Consumption Savings (tones/year, specify if otherwise)

### Total Waste Avoided (tones/year, specify if otherwise)

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

D3  living lab technique"

**The Rural Living Lab that adopted the sustainable /green solution****Name of the Rural Living Lab****Description of the RLL** *(Please shortly include some key information of the company)*

The mandate of the Center for Social Innovation in Agriculture (CISA) is to support the Quebec Reference Center for Agriculture and Agri-Food (CRAAQ) in order to help it identify needs and to co-build appropriate tools that help foster efficiency of the work of the support service to the mesh and the transfer of agricultural enterprises carried out by the agents of mesh of L'ARTERRE. By using the concept of "living labs", a research and development approach that promotes collaborative involvement between the promoter of goods and services and users, CISA allows to improve and develop tools and services, to harmonize the approaches and practices of the mesh agent community, and to develop approaches to solve problems experienced by L'ARTERRE Living Lab professionals.

**Upload the logo of the RLL (if any)****Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)***Contact details of the RLL****Location****The SME/stakeholder that provided the sustainable/green solution****Name of the SME/stakeholder**

- Cégep de Victoriaville
- Centre de recherche en agriculture et agroalimentaire du Québec (CRAAQ)
- Ministère de l'Économie, de la Science et de l'Innovation
- MRC Brome-Missisquoi

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

**Upload the logo of the company/stakeholder**

**Sector** (*The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used*)

**Contact details of the SME/stakeholder** (*Include contact person, location, email, etc.*)

**Location**

<https://www.facebook.com/cisainnovation/photos/a.283334225141186/504565263018080/?type=3&theater>

**Data Protection**

- The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
- 

**Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.



### T3.2.1.- 1.2.2. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency, efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

#### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

MADONIE LIVING LAB acts as a territorial innovation hub, interconnecting the pillars of the local sustainable development strategy in the rural area of Madonie (renewable energy, overall landscape protection, eco-agriculture and sustainable tourism promotion), through an appropriate and collaborative solution generation process.

#### Description of the case study

*A possible outline for a "Rural Living Lab Case Study" to capture necessary information could be the following:*

1. Background (general information setting the landscape of the RLL initiative/solution/action);
2. Reasoning (why did your organization undertake this sustainable/green solution?);
3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);

4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);
5. Facilitating factors (what factors enabled this good practice to take place?);
6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);
7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)

The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.

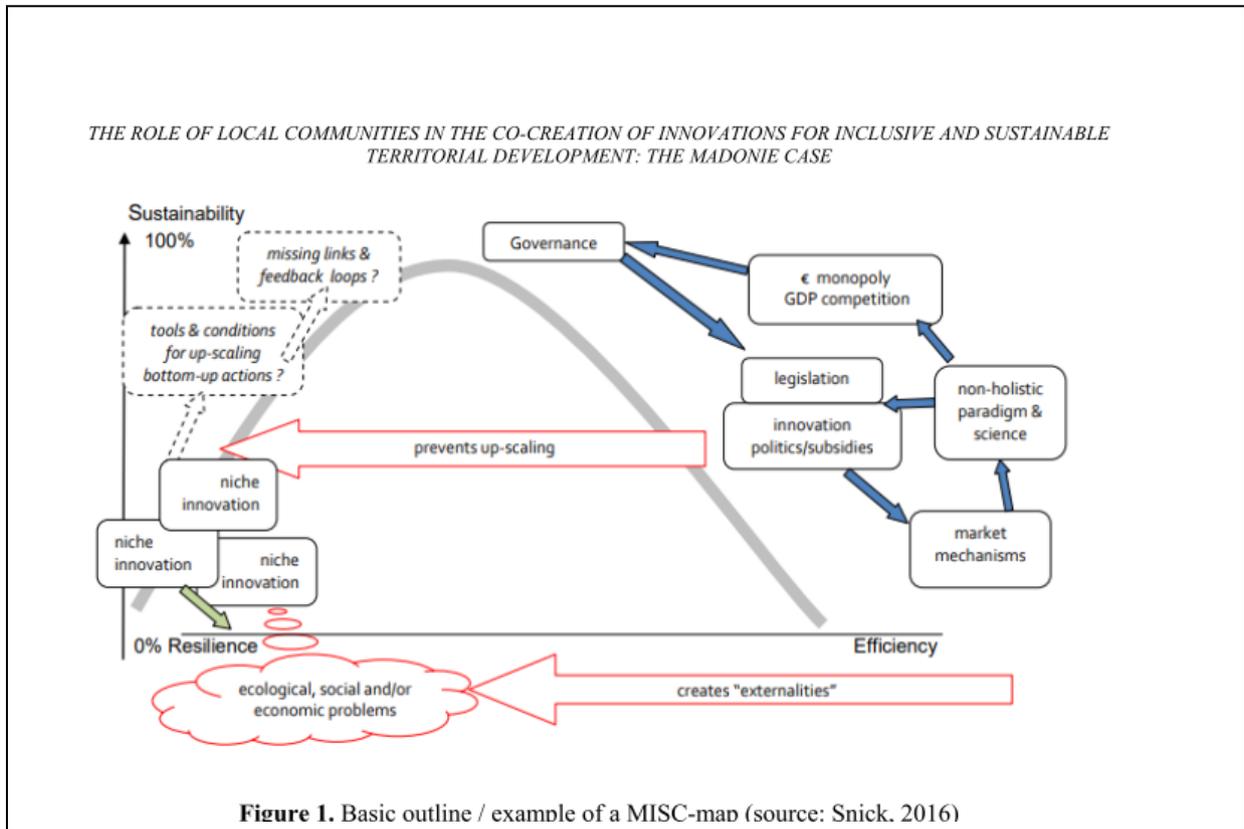
MADONIE LIVING LAB has specialized and expanded previous experiences, piloted in the territory under EU funded projects, within the process of implementing the National Strategy for Internal Areas (SNAI). The SNAI has been promoted by the Italian Government and it is the national framework for the inner areas of the EU cohesion policies and it is driving the ERDF actions in these territories. Madonie area has been selected as one of the priority targets after an evaluation process of the maturity level and the regeneration potential.

The local community chose to address in a systemic way the issues relating to mobility services, school and health, with the view of a sustainable and inclusive growth, and to optimize the integration of the ordinary development policies for citizens services, supported by national funds, with extraordinary actions, supported by EU structural funds.

Madonie is now going to use the MADONIE LIVING LAB as a general methodological framework leverage to further facilitate the process of participatory planning and to experiment and consolidate the involvement of citizens, administrators and local companies in co-design of platforms and services connected to their prior challenges. Madonie LL supports the strategic development of the Madonie territory through four steps: 1. vision at the political and administrative level and participation, maximising local value creation, raising awareness of the administrators, empowering the communities; 2. knowledge and design thinking through the analysis of data in different sectors, promotion of idea-generation initiatives; 3. implementation of pilots and demos involving users and citizens by the demonstration of appropriate technologies in relevant, open environments; 4. business and management models. Positive results of the participatory process were registered on the side of effectiveness, sustainability and legitimacy. As for effectiveness, the impact was positive as participation contributed to the shaping of the “Resilient Madonie” Program, including the creation of a Green community. As for legitimacy and sustainability, the participatory process was positively perceived by the actors involved, and contributed to solve potential conflicts. The main goal of the strategy is to experiment an innovative energy model, which includes energy savings and energy production issues with the general framework of establishing a local Green Community. The strategy envisages holistic approach to reach the target of 100% of renewable energy in the next 10 years. Today, around 52% of electricity is provided by renewable energy in the Madonie area. The strategy foresees a participatory approach among the 21 local communities of the Madonie. The core idea is that the diffusion of green technologies needs to be accompanied by social innovation in local communities. The strategy hence involves local public administrations, entrepreneurs, families, schools and citizens’ associations: everybody can contribute to the challenge of cultural change of the Madonie horizon. All the local actors are involved as “prosumers”: both producers and consumers of energy services, interested to reduce the consumption and the costs as well as to improve the quality of environment and life. The promoter of the process has been the Società di Sviluppo delle Madonie (SO.SVI.MA.), the local development agency, which coordinated the candidacy of the program “Resilient Madonie” to the National Program for Inner Areas. (SO.SVI.MA.) organised many activities in order to enlarge the participation of local actors in working groups, thematic seminars, public meetings and conferences. In relation with specific themes the promoter encouraged the participation of qualified stakeholders, research centres and experts who were able to contribute in appropriate way to find the best solutions. A strong contribution was given by the Consortium ARCA, a centre of innovation, applied research and business incubation, in partnership with the University of Palermo.

The participatory process used the following tools: constitution of a stakeholders’ steering committee to supervise the process, some kind of selection of participants (random sample, target groups, etc.), facilitation and conduction of the process by external professionals, involvement of technicians and experts in direct interaction with participants, constitution of a technical task force to support the collaborative process, involvement of politicians and elected officials in direct interactions with participants and constitution of a politicians’ task force to supervise the process. Moreover, the municipalities encouraged energy efficiency initiatives both for public institutions, private citizens and economic operators to install photovoltaic panels for the boilers and heating. Some local entrepreneurs started to produce renewable energy from biogas of breeding farms or within the process of organic fertilizer production. Many people have turned to use wood stoves fuelled by pellet. Pellet production from local agro-forestry resources has been tested and experiences gained.

Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study





**What was/is the type of the sustainable/green solution?**

**Technology (development of innovative technologies and processes)**

- Raw Materials
- Pre-fabricated Structures Chemicals and
- Compounds Products (Goods) Machinery
- Electrical Equipment
- Electrical Power Generation Equipment
- Automation (i.e. how equipment is used)
- Infrastructure
- Information Technology
- Other (please specify)

**Service**

- Education
- Behavioural Patterns

- Carbon Social Responsibility
- Other (please specify)

**Organizational Methods Development and Implementation of Environmental Management Systems**

- Environmental Auditing
- Carbon Footprint Analysis and Monitoring
- Other (please specify)

**Technical Consulting**

- Technology Assessment
- Resource Consumption Audit and Analysis
- Waste Stream Analysis and Waste Management
- Restoration and Rehabilitation
- Other (please specify)

**Engineering Design /**

**Installation**

- Regulatory Compliance
- Environmental Impact**



Horizon 2020

Assessment Risk

Assessment

REACH, CLP





- Other
- Green Business Model
- Other (Health & mobility services)

**What does the featured solution contributed to?**

- Environmental Protection
- Resource Efficiency
- Protection of Public Health
- Compliance with Regulatory Requirements Other : Development of innovative processes in the agrofood industry, improvement of the local identity of Madonie and sustainable and renewable management of energy resources.

**Which sector does the case study belong to?**

- Materials (e.g. bio based materials, building materials, etc.)
- Industrial Processes
- Energy Production
- Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)
- Agriculture and Fisheries
- Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)
- Waste Treatment and Recycling
- Transportation
- Buildings
- Hospitality
- Other (please specify)

**How would you further categorize the sector for Materials?**

- Bio-based Materials
- Nano-materials Glass
- Materials Chemical
- Materials Building
- Materials Ceramics
- Polymers Biodegradable
- Products
- Other (please specify)
-



**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**

- Conventional Energy
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization Pest and Disease Management Aquaculture
- Other (please specify)
- 

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
-



Protection of Biodiversity

Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

Solid Waste Management

Waste Water Treatment Hazardous

Waste Management End of Life

Product Recovery Material

Reclamation

Waste Exchange

Other (please specify)

**How would you further categorize the sector for Transportation?**

Vehicle Technology

Vehicle Fuels

Fuelling and Charging Infrastructure

Traffic and Route Management

Driving Patterns and Choice of Transport Modes

Other (please specify)

**How would you further categorize the sector for Buildings?**

Building Design Building

Automation Insulation

Lighting

HVAC (heating, ventilation and air conditioning)

Other (please specify)

**How would you further categorize the sector for Hospitality?**

Accommodation

Travel and tourism

Food and beverage service

Sporting events

Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

D3.2. Report of "Mapping the living lab technique"

Available

Emerging

Demonstrated in practice

### Financing

Private Funds

Subsidy

Bank Loan

Third Party Financing

Other

National and European Fundings

### Investment costs *(Turn - key costs)*

Interventions of energy efficiency within public buildings (4.329.000 euros) and public lighting (2.108.000 euros).

Integrated interventions of energy efficiency within public hospital (950.000 euros) and sports complex (614.450 euros) in Petralia Sottana.

6 biomass processing platforms for wood pellet production (3.000.000 euros).

Interventions of energy efficiency within the school building which host Energy Fablabs (800.000 euros).

Foundation of a network of energy Fablabs within the school building which the smart program of the Madonie School Network (1.224.662 euros).

Empowerment of the Madonie Living Lab (1.414.000 euros), a territorial living lab, devoted to energy, agrofood and natural/cultural heritage that is part of the European Network of Living Labs.

### Operating costs *(Operational and maintenance costs)*

N/A

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

N/A

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

N/A

## The Rural Living Lab that adopted the sustainable /green solution

### Name of the Rural Living Lab

Madonie Living Lab

### Description of the RLL *(Please shortly include some key information of the company)*

MaLL was also meant to be a territorial innovation hub in which all actors of the Inner Areas Strategy would participate, a network of physical and virtual spaces for the development of suitable solutions for global challenges, and a link between the pillars of the sustainable rural development strategy for Madonie area through demonstration and scale-up actions.

The MaLL project aims to: a) support local communities through participation in experimenting new approaches to responsible research, innovation and entrepreneurship; b) provide equipped spaces and facilities to allow competence and experience sharing; c) match the demand of local communities for strategic planning of sustainable development, quality of life improvement and smart management of local resources.

### Upload the logo of the RLL (if any)



### Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

### Contact details of the RLL

Elizabeth Parisi eparisi@consorzioarca.it

### Location

Easy integrazione di sistemi s.r.l. Via Ing. N. Mineo 14 90145 Palermo

## The SME/stakeholder that provided the sustainable/green solution

### Name of the SME/stakeholder

Public and Civic Communities, SMEs, non-profit associations and professionals

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

Local administrators are receiving inputs and suggestions about the possibility to innovate in the key sectors prioritized for local development, having a first-hand and liable information about their cost-effectiveness, competitiveness and impact on the community. Companies are exploiting the potential of new technologies, increasing their knowledge through the exchange with the research community and participating in a qualification process of the local supply chain. Researchers, individual innovators and tech start-ups have the chance to propose, test and demonstrate innovative solutions for local challenges with high social impact. Finally, citizens participate in co-design local development policies to have the opportunity to drive the solution discovery process to their effective needs and priorities.

**Upload the logo of the company/stakeholder****Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)***Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)***Location****Data Protection**

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
- X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.

**BIBLIOGRAPHY:**

- "The role of local communities in the co-creation of innovations for inclusive and sustainable territorial development: the Madonie case.pdf (authors: Jelena Mazaj, Arabella Mocchiari Li Destri, Silvana di Bono).
- Project ENLARGE-Energies for Local Administrations to Renovate Governance in Europe.pdf
- FoTRRIS Evaluation Report, Deliverable D3.2. pdf (with contributions from (IFZ, VITO, ESSRG, CESIE, UCM, ERRIN, Transition Wekerle).
- "The Strength of the networks". Pdf (Silvana di Bono, EU Project Advisor)
- International Standard Classification of all Economic Activities (ISIC), Rev. 4
- <http://madonieareainterna.it/contatti/>
- <https://enoll.org/network/living-labs/?livinglab=mall-madonie-living-lab#description>



## T3.2.1.- 1.2.3. LIVERUR Rural Living Lab Case study

### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

### Case Study Description

Acadielab is a physical place, a process for innovating with users at all stages + an intermediation structure that enshrines its action over time, with the objective of achieving a social impact. Acadielab aims to co-construct with diverse stakeholders practices for the rehabilitation of agro-ecosystems adapted to the diversity of production systems and farmers. Social innovations: induce a long-term change in the behaviour of in the territory in their relationship to the agro-ecosystem, by developing individual and collective capacities for action at the watershed level. The watershed is located on the Acadie River.in the south of Canada near the United States and concerned 70 farms in a very intensive zone of farming ; big farms m dairy farms et farms maraichères, more of 1 million dollar income per year.

The process has been underway since 2015.

## Description of the case study

*A possible outline for a "Rural Living Lab Case Study" to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the RLL initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this sustainable/green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);*
- 7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?*

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

### **Acadie-lab in the agricole innovative-system: Teachings and conclusions**

**Barriers** ?Relational proximity that relies on the existence of shared values, but which locks in the sense or social capital that is created only concerns members of the initial community. Open challenge.

**Acadie-lab** activities are decided first by farmers (before experts.)

Not pré-determined solutions, but rather a panel of solutions proposed in which a few of those ones will be chosen by farmers, neither than others solutions.

**We work with 70 farmers which are always same people, and we have to work with them in the long term** . That's a big difference with other living -lab which worked mainly in a short time.

**Long cycle of one year minimum is required for action:** 5steps :Planning (autumn) .Exploration by possibly co-design (winter) Experimentation (spring) with both the agronomy and farmer and for the end Evaluation (autumn and winter),

**Ex : Year 1** Farmers chose covering plants :Exploration time : What i am doing to put in place that covering plant ? Some farmers explained some difficulties about techniques and knowledge, about how to put in place that plant ; how to seed it ? Is it possible to seed that plant both while seeding the maize ? We constitute a group of five farmers to experiment the right and new technics those experimental farmers will become the best in the practise a few year later.

**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.**

**A yearly methodology with three dimensions:**

Co-design - Permanent Animation - Evaluation all along the program

**A pluri yearly methodology based on methodology(Sharmer ,2009)with 5 steps.**

**Governance allows each stakeholder to be involved in decisions;**

Discussion of traditional and descendant methods ( researchers producing innovation , agronomes elaborating advises and then farmers applying advises.. )

An approach that breaks with the classic mechanisms beginning with a common understanding of the problem and leads to a shared action plan.

**Rapid implementation of concrete actions chosen by farmers is preferred**

**This approach focuses on farmers' cultivation of innovation**

**Each project respects the chart elaborated by Acadie-lab and is decided first by farmers with the help of agronomists and researchers.**

- Challenge of the professional identities of agronomists and experts ( now co-construction attitude before they were advisors )

- Challenge of the farmers identities: before attentive or resistant to change to co-constructive attitude..

- Challenge of the politico administrative framework , because governance is actually mainly made by norms .



**What was/is the type of the sustainable/green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds Products
  - (Goods) Machinery
  - Electrical Equipment
  - Electrical Power Generation
  - Equipment Automation (i.e. how equipment is used)
  - Infrastructure
  - Information Technology
  - Other :agricultural practice
- Service
  - Education
    - Behavioural Patterns
    - Carbon Social Responsibility
    - Other (please specify)
  - Organizational Methods
    - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
  - Technology Assessment
  - Resource Consumption Audit and Analysis
  - Waste Stream Analysis and Waste Management
  - Restoration and Rehabilitation
  - Other (please specify)
- Engineering Design
  - Installation Regulatory Compliance
  - Environmental Impact Assessment REACH, CLP
  - Risk Assessment



Horizon 2020





Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)

Waste Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Biodegradable

Products

Polymers

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization
- 
- Pest and Disease Management Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning) Other
- (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service Sporting
- events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- 

Demonstrated in practice



**Financing**

Private Funds

Subsidy

Bank Loan

Third Party Financing

Other

**Investment costs** (*Turn - key costs*)

N/A

**Operating costs** (*Operational and maintenance costs*)

Financing partners:  
Agri-conseils  
Fondation de la Faune du Québec  
Etat de Québec

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

**Technical and Human prerequisites**

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

D3.2. Report of "Mapping the living lab technique"

A joint initiative of different types of stakeholders:

- Environmental consulting services; to act improvements for agrosystem on the farm and also at the scale of the water shed
  - Consultants of the living laboratory, for using living –lab methods and principles
  - University of Environmental Sciences
- A group of farmers represented by an association

A chart has been built to precise with the stakeholders the type of projects which will be chosen.

For example about the improvement about water quality, farmers asked us to fix by themselves the objectives about water quality. So they fixed by themselves objectives on two little watershed in the big one. And they was supported by a model in order to collect all the consequences of the improvement and changes of practising of the farmers with the agronomy. So the scientists built a specific model in order to identify the consequences of the different possible choices.

#### **Why the farmers are more present in AcadieLab ?**

-First it's not the farmers who are the more sensibiliser about environment but traditional farmers who are mobilised in the lab.,

- It's farmers who decided to do an experimentation on a new technique on their farm year after year, they began by the more easier measure year 1,

And year 2 decide to have a reflexion with researchers about 8 concept of ago-environnemntal measures to finally experiment two of those ones on their farms.

**Farmers doesn't feel stigmatized by the approach of Acadielab but encouraged as LL brings value to their knowledge,**

**What offer l Acadielab ?** Starting from the farmers practising in the short time to engage social changes in the long term is our choice...

More: <http://agrobonsens.com/recherche/lacadielab/>

#### **Regulatory framework prerequisites and constraints**

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

N/A



**The Rural Living Lab that adopted the sustainable/green solution**

**Name of the Rural Living Lab**

L'ACADIELAB

**Description of the RLL** (Please shortly include some key information of the company)

**Acadielab** aims to co-construct with diverse stakeholders practices for the rehabilitation of agro-ecosystems adapted to the diversity of production systems and farmers.

Acadielab work on a water shed of south of Québec with 70 big farms

- Co-construire new practising fort he farmers
- Protected the environnement in the long time
- Développement individuals and collective capacities fort the Acadian watershed

**Upload the logo of the RLL (if any)**

There is a video on the web site of Acadie lab which explains very wellt he objectives, the stakholders, and some examples of what they are doing( video about 20 minutes)

**Sector** (The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)

**Contact details of the RLL**

<http://agrobonsens.com/recherche/lacadielab/>

**Location**

Québec

**The SME/stakeholder that provided the sustainable/green solution**

**Name of the SME/stakeholder**

Three types of stakeholders:

1/( Pleine Terre ): Agonomie Environnemental experts

2/ Consultant living-lab ( RANG 3)

3: University of environmental Sciences (Université du Québec à Trois-rivières



**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

Julie RUIZ (UQTR)

Patrick Mundler (Laval University)

**Location**

Quebec

**Data Protection**

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
  
- X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.



### T3.2.1.- 1.2.4. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

*Please select the dominant circular or green economy area of your Rural Living Lab case and please tick appropriate answer(s) in each section along the Survey.*

- Environment and Resilience
- Resource efficiency efficacy and management
- Competitiveness of SMAEs & rural value chains
- Openness to new markets and technologies

#### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

#### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

Analysis of the actual situation of a limited territory in UCT area, with about ten rural tourism farms and about fifty traditional farms just partially integrated but in a potential great development of integrated activities: agriculture, tourism, food and beverage industries, campings and accommodation, fishing companies, sport services, etc.

#### Description of the case study

A possible outline for a “Rural Living Lab Case Study” to capture necessary information could be the following:

1. Background (general information setting the landscape of the RLL initiative/solution/action);
2. Reasoning (why did your organization undertake this sustainable/green solution?);
3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);
4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);
5. Facilitating factors (what factors enabled this good practice to take place?);
6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);
7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)

The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.

Building a bigger economic chain, we could create new add values to the actual incomes of the present farms. Citizens and tourists find in the same territory the possibility of buying local products (wine, olive oil, cheese, meat.) and receive interesting recreation services (sport, cooking classes, music classes) and organised tours in the principal park areas, monuments and artistic towns.

UCT Public Offices could have a key role in this development.

Step 1) analysis of actual processes (cost and benefits)

Step 2) adjustment proposal

Step 3) analysis of post processes (cost and benefits)

Step 4) new add economic values for the single farm and for the entire territory

Introducion of a major use of renewable energies, creating a logistic platform to harvest green biomass and using it to reduce the cost of heating and electricity.

Post analysis of these economy effects and benefits for the environment.

**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study**





**What was/is the type of the sustainable/green solution?**

Technology

Raw Materials

Pre-fabricated Structures

Chemicals and Compounds

Products (GoodMachinery

Electrical Equipment

Electrical Power Generation Equipment

Automation (i.e. how equipment is used)

Infrastructure

Information Technology

Other (please specify)

Service

Education

Behavioural Patterns

Social Responsibility

Other (please specify)

Organizational Methods

Development and Implementation of Environmental Management Systems

Environmental Auditing

Carbon Footprint Analysis and Monitoring

Other (please specify)

Technical Consulting

Technology Assessment

Resource Consumption

Audit and Analysis

Waste Stream Analysis and Waste Management

Restoration and Rehabilitation

Other (please specify)

Engineering Design/Installation

Regulatory Compliance

Environmental Impact Assessment

Risk Assessment



Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)

Waste Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials

Glass Materials

Chemical Materials

Building Materials

Ceramics

Polymers

Biodegradable Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

---

**How would you further categorize the sector for Energy Production?**

Conventional Energy

Alternative Energy

Other (specify)

**How would you further categorize the sub-sector for Alternative Energy Production?**

Wind Energy

Solar Energy

Geothermal Energy

Tidal Energy

Bio-fuels Biogas

Biomass Energy and Waste-to-Energy

Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

Energy Efficiency

Fuel Efficiency

Raw Material Efficiency

Water Efficiency

Land/Soil Efficiency

Other (please specify)



**How would you further categorize the sector for Agriculture and Fisheries?**

Food and Feed Management

Land Management and Fertilization Pest and Disease Management Aquaculture

Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

Air Pollution Prevention and Mitigation Water

Pollution Prevention and Mitigation Soil

Pollution Prevention and Mitigation Protection of

Biodiversity

Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

Solid Waste Management

Waste Water Treatment

Hazardous Waste Management

End of Life Product

Recovery Material Reclamation

Waste Exchange

Other (please specify)

**How would you further categorize the sector for Transportation?**

Vehicle Technology

Vehicle Fuels

Fuelling and Charging Infrastructure

Traffic and Route Management

Driving Patterns and Choice of Transport Modes

Other (please specify)

**How would you further categorize the sector for Buildings?**

D3.2. Report of "Mapping the living lab technique"

Building Design

Building Automation

Insulation

Lighting

HVAC (heating, ventilation and air conditioning)

Other (please specify)

#### How would you further categorize the sector for Hospitality?

Accommodation

Travel and tourism

Food and beverage service

Sporting events

Other (please specify)

#### Information for Solution Assessment

##### Maturity of the solution

Available

Emerging

Demonstrated in practice

##### Financing

Private Funds

Subsidy

Bank Loan

Third Party Financing

Other

**Investment costs** (*Turn - key costs*)



PROCESSES AND PRODUCTS COSTS

COST AND BENEFITS ANALYSIS

Operating costs (Operational and maintenance costs)

[Empty box for operating costs]

Emission Reductions (tones/year, specify if otherwise)

[Empty box for emission reductions]

Energy Consumption Savings (kWh/year, specify if otherwise)

[Empty box for energy consumption savings]

Water Consumption Savings (tones/year, specify if otherwise)

[Empty box for water consumption savings]

Material Consumption Savings (tones/year, specify if otherwise)

[Empty box for material consumption savings]

Total Waste Avoided (tones/year, specify if otherwise)

[Empty box for total waste avoided]

Technical and Human prerequisites

Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.

Presence of about ten stakeholders and twenty contacted farmers

Regulatory framework prerequisites and constraints

Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.

Landscape authorizations

D3



**The Rural Living Lab that adopted the sustainable/green solution**

**Name of the Rural Living Lab**

TEZIO TRASIMENO CONSORTIUM

**Description of the RLL** *(Please shortly include some key information of the company)*

PUCCIARELLA WINE PRODUCTION  
CARINI WINE AND OIL PRODUCTION  
IL CORNIOLO RURAL TOURISM  
AURORA GROUP FOOD AND BEVERAGE

**Upload the logo of the RLL (if any)**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Agricultural production

**Contact details of the RLL**

<http://macinedeltrasimeno.it/en/consorzio-olivicolo-produzione-olio-biologico-certificato/>

**Location**

Lake Trasimeno /Umbria



**The SME/stakeholder that provided the sustainable/green solution**

**Name of the SME/stakeholder**

IL CORNIOLO RURAL TOURISM, CARINI

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

Local quality products and services

**Upload the logo of the company/stakeholder**

[Empty box for logo upload]

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Agriculture, rural tourism

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

www.ilcorniolo.it

**Location**

[Empty box for location]

**Data Protection**

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
- X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.

### T3.2.1. – 1.3.1. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

*Please select the dominant circular or green economy area of your Rural Living Lab case and please tick appropriate answer(s) by “X” in each section along the Survey.*

- Environment and Resilience
- Resource efficiency efficacy and management
- Competitiveness of SMAEs & rural value chains
- Openness to new markets and technologies

#### The main role of your organisation

What was/is the role of your organisation in the featured case study?

- XProduction of sustainable/green solution
- X Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

#### Case Study Description

**Short pitch of the solution** *(One-sentence summary of the case study)*

This project, based on ethnographic and strategic techniques derived from action research, aims to set up a participatory itinerary while implementing a prospective view by considering a wide range of stakeholders.

More broadly, the ‘Smart Tourism Lab’ will consider the village itself as an open platform merging technological ownership, local economy, culturally-rooted tradition, inclusive identity, international openness, political bridging (social capital), and social innovation for setting up an innovative touristic innovative strategy.

## Description of the case study

A possible outline for a “Rural Living Lab Case Study” to capture necessary information could be the following:

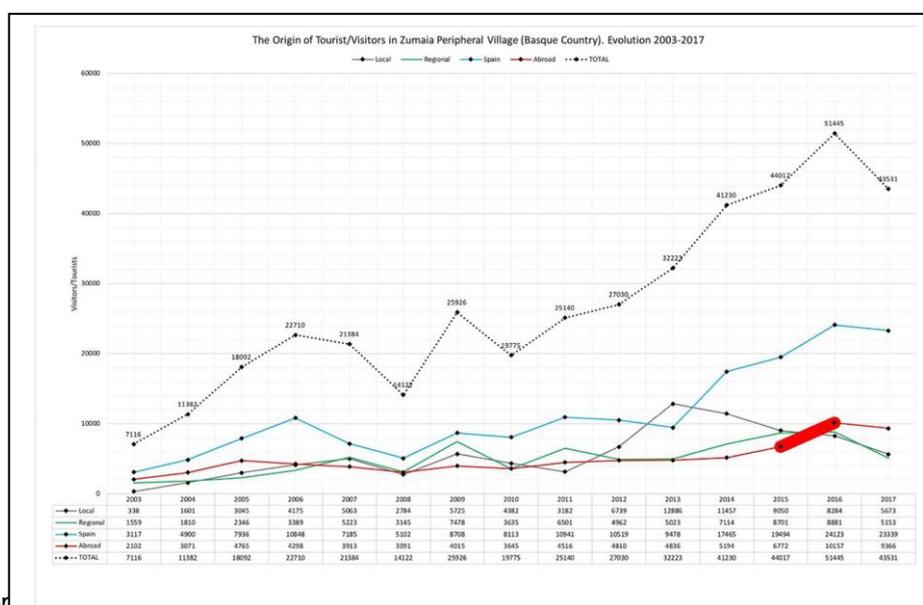
1. Background (general information setting the landscape of the RLL initiative/solution/action);
2. Reasoning (why did your organization undertake this sustainable/green solution?);
3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);
4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);
5. Facilitating factors (what factors enabled this good practice to take place?);
6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);
7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?

The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.

Rapid growth in international tourism flows, new consumer trends, digitalization of the economy, security issues, and adaptation to climate change are among the major challenges facing the tourism sector. These will require active, innovative, and integrated policy responses to ensure that tourism remains a competitive sector and continues to deliver economically and sustainably in the years to come.

The "Smart Tourism Lab, ZumaiaLab" aims to set up an experimental community to discuss, debate, design and develop tourism products, initiatives, services, platforms, technologies and ideas that will encourage co-creation, user engagement test centers and citizen experimentation focused on innovation in the field of tourism.

Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study





**What was/is the type of the sustainable/green solution?**

Technology

Raw Materials

Pre-fabricated Structures

Chemicals and Compounds

Products (Goods) Machinery

Electrical Equipment

Electrical Power Generation Equipment

Automation (i.e. how equipment is used)

Infrastructure

InformationTechnology

Other (please specify)

Service

Education

Behavioural Patterns

Carbon Social Responsibility

Other (please specify)

Organizational Methods

Development and Implementation of Environmental Management Systems

Environmental Auditing

Carbon Footprint Analysis and Monitoring

Other (please specify)

Technical Consulting

Technology Assessment

Resource Consumption Audit and Analysis Waste

Stream Analysis and Waste Management

Restoration and Rehabilitation



Horizon 2020  
Engineering Design / Installation

Other (please specify)



Regulatory Compliance

Environmental Impact Assessment

Risk Assessment

REACH, CLP

Other (please specify)

× Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

× Environmental Protection

× Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

× Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

× Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.)

Waste Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

- × Bio-based Materials
  - Nano-materials
  - Glass Materials
  - Chemical Materials
  - Building Materials
  - Ceramics
  - Polymers
  - Biodegradable Products
  - Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

---

**How would you further categorize the sector for Energy Production?**

- × Conventional Energy
  - Alternative Energy
  - Other (specify)

**How would you further categorize the sub-sector for Alternative Energy Production?**

\*Wind Energy

- × Solar Energy
  - Geothermal Energy
  - Tidal Energy
  - Bio-fuels Biogas



Biomass Energy and Waste-to-Energy

Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

× Conventional Energy

Alternative Energy

Other (specify)

Energy Efficiency Fuel

Efficiency

Raw Material Efficiency

Water Efficiency Land/Soil

Efficiency

Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

×Food and Feed Management

×Land Management and Fertilization Pest and Disease Management Aquaculture

Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

×Air Pollution Prevention and Mitigation

Water Pollution Prevention and Mitigation

Soil Pollution Prevention and Mitigation

Protection of Biodiversity

Other (please specify)



**How would you further categorize the sector for Waste Treatment and Recycling?**

Solid Waste Management

Waste Water Treatment

Hazardous Waste Management

End of Life Product

Recovery Material Reclamation

Waste Exchange

Other (please specify)

**How would you further categorize the sector for Transportation?**

Vehicle Technology

Vehicle Fuels

Fuelling and Charging Infrastructure

Traffic and Route Management

Driving Patterns and Choice of Transport Modes

Other (please specify)

**How would you further categorize the sector for Buildings?**

Building Design

Building Automation

Insulation

Lighting

HVAC (heating, ventilation and air conditioning)

Other (please specify)

**How would you further categorize the sector for Hospitality?**

Accommodation

Travel and tourism

×Food and beverage service

×Sporting events

Other (please specify)

### Information for Solution Assessment

#### Maturity of the solution

Available

×Emerging

×Demonstrated in practice

#### Financing

×Private

Funds

Subsidy

Bank Loan

Third Party Financing

Other

#### Investment costs *(Turn - key costs)*

N/A

#### Operating costs *(Operational and maintenance costs)*

N/A



**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

We can explain this by the applied methodology, which is based on the preparation of the study before the development of the Zumaia tourism plan is that of action research defined as a working modality generating knowledge, producing changes and ultimately compatible with other types of projects such as intervention, evaluation and survey. One of the most typical characteristics of this methodology is its participatory nature: its actors are both active subjects and an object of study. Exceptionally, there are goals and objectives given a priori, but it is characteristic of the action research that a large part of the goals and objectives is generated as part of the process.

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

N/A

### The Rural Living Lab that adopted the sustainable/green solution

**Name of the Rural Living Lab**

D3  g lab technique"

**Description of the RLL** *(Please shortly include some key information of the company)*

‘Experimenting with Smart Tourism Labs’. This project, based on ethnographic and strategic techniques derived from action research, aims to set up a participatory itinerary while implementing a prospective view by considering a wide range of stakeholders . The multi-stakeholder scheme will follow the Penta-Helix framework by encompassing local authorities, the private sector, academia and research centres, civil society and social entrepreneurs and activists.

<https://www.youtube.com/watch?v=4xYzIW3FGCg>

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

**Contact details of the RLL**

#Zumaialab on Twitter

<https://www.igorcalzada.com/zumaialab/>

**Location**

Zumaia/Basque country, Spain

### The SME/stakeholder that provided the sustainable/green solution

#### Name of the SME/stakeholder

Igor Zalcada

#### Description of the SME/stakeholder *(Please shortly include some key information of the company)*

The conceptual and strategic idea of the project was presented and published in proceedings of the UNWTO 2017 (United Nations World Tourism Organisation) as follows : **Calzada, I. & Arranz, A. (2017), Translocal Strategies for Experimenting with Smart Tourism Labs in Zumaia: The Case of the Basque Coast Geopark, Basque Country (Spain)**, paper accepted and published in the Proceedings in the **1st UNWTO World Conference on Smart Destinations, Murcia (Spain)**.

#### Upload the logo of the company/stakeholder

#### Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Tourism

#### Contact details of the SME/stakeholder *(Include contact person, location, email, etc.)*

#### Location

Zumaia, Basque country, Spain

### Data Protection

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.
- X Authors of the case study agree the material provided to become available in public in part or as a whole.

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.

#### D3.2. Report of "Mapping the living lab technique"

## T3.2.1.- 3.2.1. LIVERUR Rural Living Lab Case study

### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

What was/is the role of (your) leading organisation in the featured case study?

- X Production of sustainable/green solution
- X Distribution / installation of sustainable/  
green solution
- Adoption of sustainable/green solution

#### Case Study Description

Short pitch of the solution *(One-sentence summary of the case study)*

During the 1<sup>st</sup> & 2<sup>nd</sup> Editions, 13 ventures were accelerated being all of them already piloting in Idanha-a-Nova with local farmers!

#### Description of the case study

A possible outline for a "Rural Living Lab Case Study" to capture necessary information could be the following:

D3.2. Report of "Mapping the living lab technique"

1. *Background (general information setting the landscape of the RLL initiative/solution/action);*
2. *Reasoning (why did your organization undertake this sustainable/green solution?);*
3. *Process (what steps were followed in order to implement and maintain the sustainable/green solution?);*
4. *Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution? How does the sustainable/green solution benefit the environment?);*
5. *Facilitating factors (what factors enabled this good practice to take place?);*
6. *Barriers/challenges (what barriers/challenges did your RLL/ organization face?);*
7. *Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?*

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

AgriTech – FoodTech and CleanTech Accelerator program for start-ups in i-Danha Food Lab, Portugal. BGI and Idanha-a-Nova's Municipality partnership started in 2016, and the goal has always been the same: stop Idanha-a-Nova's desertification. As BGI is an MIT Portugal initiative aiming at accelerating deep technology startups, it comes up with a technology-related solution. Hence, since then, it was started the path to build a hub of technologies for food production that do not use artificial chemicals, genetically modified seeds, and that would use technology innovation to increase efficiency avoiding resources waste. Every year these two entities organize an annual event to present the results and ideate on how to improve, close deals and boost the technologies that belong to this organic agriculture "showroom".

During 7 months, the accepted ventures receive in-kind support up to 15 000 euros, mainly for prototype verification and Business Model validation, directly with suppliers and clients, such as farmers. During the mentoring program, the selected projects have access to experienced business catalysts, expert mentors, investors, corporates, introductions and connections to the start-up ecosystem from the BGI's network.

This program looks for ambitious entrepreneurs from all over the world with **disruptive innovation** that need guidance and conditions for trials / demos, from two main tracks:

- New business models for traditional business
- Technology ventures (Start-ups)

They shall aim to fulfill at least one of the following goals:

- CO2 mitigation
- Water & Energy
- Circular economy
- Logistics & distribution channels
- Biotech & Biodynamics

The areas of interest for this acceleration program are:

- **AgriTech – Sustainable agriculture in all value chain, e.g. Aquaponics, Hydroponics, Bioponics, Farm Robots, Parameterization/controlling systems**
- **FoodTech – New gastronomy techniques, using macrobiotics food, macrobiotic and endogenous resources from Idanha, e.g. Robotization of bakeries, new transformation/food systems.**
- **TechDistribution – New channels for biological foods distribution in better maintenance conditions, e.g. Development of collaborative economy: peer-to-peer (by internet, geolocation, Apps), new packages for better validity.**

Regarding the results of the i-Danha Food Lab accelerator, it counts with three editions, 81 applications received from 17 countries. 13 startups were selected, which together have raised €261 000 and generated 73 jobs.

Key results: Between 48 applications from 13 different countries from 3 distinct continents (Europe, Africa and America), 6 Startups were selected. GroLab, Aquaponics, Planetiers, Nature Fields, BluePanopoly e LabMov were the selected Startups to enter this 2<sup>nd</sup> and 3<sup>rd</sup> Edition of the Acceleration Program.

The Municipality Mayor enhanced that "the countryside is a territory full of opportunities, not just for the production of high quality food, but also for tourism, entertainment, gastronomy, leisure, creative industries, circular economy, technology **innovation**."



Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.

The screenshot shows the website for the I-DANHA FOOD LAB, part of the BUILDING GLOBAL INNOVATORS (BGI) program. The page features a navigation menu with links for HISTORY, PROGRAMS, BUILDERS, CAREERS, BLOG, SPONSORS, and RESOURCES. Below the navigation, the main heading is "I-DANHA FOOD LAB". The page displays several key statistics in a grid format:

81 Applications Received	240 Entrepreneurs	34% International
17 Countries	85% Survival Rate	2 Editions
13 Accelerated Ventures	5 Bootcamps	11 Active ventures

Summary from the event: <https://www.agroportal.pt/i-danha-food-lab-annual-event/> and <https://www.idanhafoodlabevent.com/> and [https://www.youtube.com/watch?time\\_continue=2&v=b1OjX68qiW8](https://www.youtube.com/watch?time_continue=2&v=b1OjX68qiW8)



**What was/is the type of the sustainable/green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - X Products (Goods)
  - Machinery Electrical
  - Equipment Electrical Power
  - Generation Equipment
  - Automation Infrastructure
  - X Information Technology
  - Other (please specify)
- Service
  - Education
    - Behavioural Patterns Carbon
    - Social Responsibility
    - Other (please specify)
  - Organizational Methods
    - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
    - X Technology Assessment
    - Resource Consumption Audit and Analysis Waste Stream Analysis and Waste
    - Management Restoration and Rehabilitation
    - Other (please specify)
  - X Engineering Design / Installation
  - Regulatory Compliance
    - Environmental Impact Assessment
    - Risk Assessment
    - REACH, CLP



Other

Green Business

Model Other (please

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste

Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Polymers Biodegradable

Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning) Other
- (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service Sporting
- events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- XEmerging
- 

Demonstrated in practice

**Financing**

- Private
- Funds
- Subsidy
- Bank Loan
- Third Party

Financing Other

**Investment costs** (*Turn - key costs*)

The selected startups receives 15.000 EURO, 6 companies are selected to attend in the 7 months programs., The other costs are comes partly from the BGI- MIT Portugal Accelerator program, partly from EIT Food Innovation Grant.

**Operating costs** (*Operational and maintenance costs*)

As this program is co-organised and hosted by the Municipality of : Idanha-a-Nova, Portugal, and the events are powered by BIG – MIT Portugal, the operating costs are shared between 2 major stakeholders (BIG and municipality).,

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

No data

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

The whole structure have been built by the BGI – Building Global Innovators, MIT Portugal program.

The Technical and Human pre-requisites are ensured by the two major 2 shareholders, and managed by the contracted consulting company.

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

N/A

## The Rural Living Lab that adopted the sustainable/green solution

### Name of the Rural Living Lab

I-Danha Food Lab (PT)

### Description of the RLL *(Please shortly include some key information of the company)*

I-Danha Food Lab Accelerator is an AgriTech and FoodTech accelerator that aims to help start-ups and traditional businesses to develop more sustainable solutions than the ones offered in the market.

i-Danha Food Lab is the first of its kind in Iberian Peninsula. Located in one of the oldest Roman villages in Portugal: Idanha-a-Nova, that aims at creating a test facility where many technologies can be tested (from both corporate and start-ups) in order to improve in both terms of CO2 mitigation, null use of chemicals and sustainable land use, environment impact, and efficiency the whole value chain in the food industry. From the seed till the distribution to the end user, their goal is to make low impact, biological products accessible to the growing population.

Their important activity is i-Danha Food Lab annual event not only marked the end of its Accelerator, but also focuses on getting the community to think and debate about future advances in the food production circular economy system designed by BGI back in 2016, and that has been suffering improvements and developments every year. This aims at minimizing waste and CO2 emissions while facing a major problem: the increase of the population and the necessity to feed it with high quality and healthy food. At the same time, many initiatives are taking place to educate the population and make it aware of the importance of food security and nutrition. The program receives funds from both channels: from MIT Portugal and also from EIT Food Innovation Grant.

### Upload the logo of the RLL (if any)



**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*<sup>7</sup>

829 Business support service activities n.e.c

### Contact details of the RLL

<http://www.idanha.pt> and <https://www.bgi.pt/idanha-food-lab>

<sup>7</sup> [https://unstats.un.org/unsd/publication/seriesm/seriesm\\_4rev4e.pdf](https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf)

**Location**

Idanha-A.-Nova , Portugal

**The SME/stakeholder that provided the sustainable/green solution**

**Name of the SME/stakeholder**

BGI - IUL MIT Portugal Accelerator (in collaboration with Municipality of Idanha-A-Nova) in Portugal.

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

Idanha-a-Nova Municipality, Portugal and MIT Portugal – BGI Building Global Innovators program

BGI is an American style, world-class, deep innovation accelerator born from the MIT Portugal Innovation and Entrepreneurship Initiative (IEI). The initiative was a collaboration between the University Institute of Lisbon (ISCTE-IUL), MIT Deshpande Center for Technological Innovation, MIT Entrepreneurship Center, and MIT's School of Engineering +  
Because of their track record, they have acquired valuable partnerships with credible organisations globally, to develop acceleration and non-acceleration projects that are sustainable, innovative, disruptive and have the potential to address the challenges of this current century.  
BGI have come a long way since inception, with a lot of experience under our belt, and have consequently emerged as a major player in the startup and entrepreneurial scene in Europe.

**Upload the logo of the company/stakeholder**



**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

7210 Research and experimental development on natural sciences and engineering

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

<https://www.bgi.pt> / <https://www.bgi.pt/idanha-food-lab>

**Location**

Lisbon, with local staff in i-Dahna- a-Nova, in Portugal.



### Data Protection

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.
  
- X Authors of the case study agree the material provided to become available in public in part or as a whole.

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.

## T3.2.1. – 3.3.1. LIVERUR Rural Living Lab Case study

### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

### The main role of your organisation

What was/is the role of your organisation in the featured case study?

- Production of green solution
- Distribution / installation of green solution
- Adoption of green solution

### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

The SRLL mission is to promote innovation and the research development in new technologies, methodologies and applications in order to achieve a better integration of this rural area in a challenging global world, giving birth to new services/systems/products and business opportunities and fostering citizen participation in the conceptualization and test.

### Description of the case study

D3.2. Report of "Mapping the living lab technique"

*A possible outline for a “green case study” to capture necessary information could be the following:*

- 1. Background (general information setting the landscape of the green initiative/solution/action);*
- 2. Reasoning (why did your organization undertake this green solution?);*
- 3. Process (what steps were followed in order to implement and maintain the green solution?);*
- 4. Effects/Results (what were results/effects observed from the implementation of the green solution? How does the green solution benefit the environment?);*
- 5. Facilitating factors (what factors enabled this good practice to take place?);*
- 6. Barriers/challenges (what barriers/challenges did your organization face?);*
- 7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?)*

*The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.*

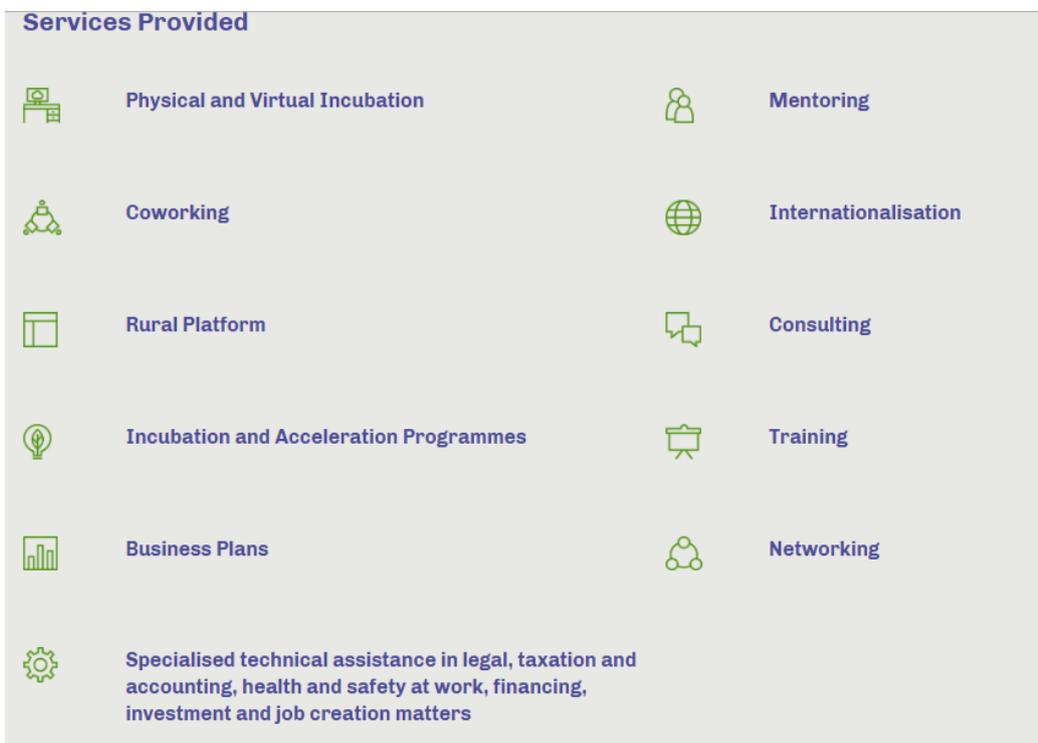


The IPN-Incubadora in partnership with the Municipality of Penela (Portuguese town of the district of Coimbra), promotes the "Smart Rural, Smart HIESE - Support Program for Rural Entrepreneurship Support", with the aim of hosting a structuring project of entrepreneurship and rural innovation.

Smart Rural Smart Hiese - Structuring Programme to Support Entrepreneurship in Rural Areas is a structuring project of entrepreneurship and rural innovation, promoting HIESE (Habitat for Business Innovation in Strategic Sectors) as a leading institution for the creation of groundbreaking ideas and business initiatives in the countryside, to generate opportunities and disseminate knowledge in this area. Since its foundation more than 2 decades ago, the IPN Incubadora has supported more than 270 companies, with a survival rate of around 80%. In 2016, these companies billed, in aggregate, around 150 million euros, of which 60% went to the foreign market, and directly employed about 2200 highly qualified staff.



Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.





**What was/is the type of the green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods) Machinery
  - Electrical Equipment
  - Electrical Power Generation
  - Equipment Automation
  - Infrastructure
  - Information Technology
  - Other (please specify)
- Service
  - Education
    - Behavioural Patterns Carbon
    - Social Responsibility
    - Other (please specify)
  - Organizational Methods
    - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
    - Technology Assessment
    - Resource Consumption Audit and Analysis
    - Waste Stream Analysis and Waste Management
    - Restoration and Rehabilitation
    - Other (please specify)
  - Engineering Design / Installation Regulatory
    - Compliance Environmental Impact
    - Assessment Risk Assessment
    - REACH, CLP



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste

Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Polymers Biodegradable

Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization Pest and Disease Management
- Aquaculture
- Other (please specify)
- 

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning) Other
- (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- 

Demonstrated in practice



**Financing**

- Private Funds
- Subsidy
- Bank Loan
- Third Party Financing
- Other

**Investment costs** (*Turn - key costs*)

N/A

**Operating costs** (*Operational and maintenance costs*)

HIESE is property of the Penela City Council, which converted and enlarged a country house turning it into a modern business incubator with plenty of functionalities. The building is composed by two floors with 15 offices to accommodate companies; a coworking area; training/meeting room and a versatile room for events. Includes common areas where incubated companies can interact or arrange a meeting with customers or business partners. Access to the upper floor is ensured by lift. On the ground floor there are the front office, administrative spaces and management's office.

**Emission Reductions** (tones/year, specify if otherwise)

N/A

**Energy Consumption Savings** (kWh/year, specify if otherwise)

N/A

**Water Consumption Savings** (tones/year, specify if otherwise)

N/A

**Material Consumption Savings** (tones/year, specify if otherwise)

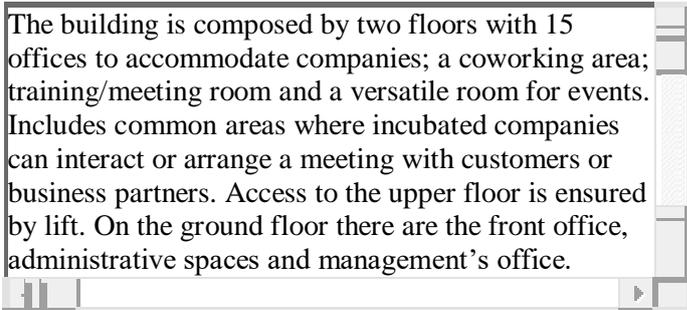
N/A

**Total Waste Avoided** (tones/year, specify if otherwise)

N/A

### Technical and Human prerequisites

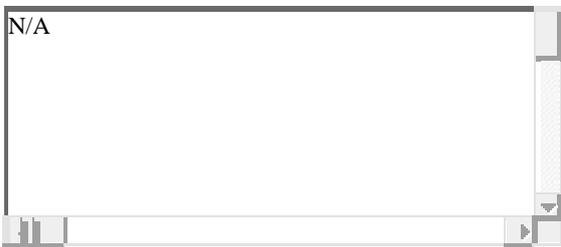
*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*



The building is composed by two floors with 15 offices to accommodate companies; a coworking area; training/meeting room and a versatile room for events. Includes common areas where incubated companies can interact or arrange a meeting with customers or business partners. Access to the upper floor is ensured by lift. On the ground floor there are the front office, administrative spaces and management's office.

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*



N/A

## The Rural Living Lab that adopted the green solution

### Name of the Rural Living Lab

### Description of the RLL (Please shortly include some key information of the company)

The **Smart Rural Living Lab (SRLL)** aims to generate new methodologies and technologies to approach rural territories weaknesses and strengths, and by these becoming a reference in sustainable rural development, exporting knowledge to other territories and working with users to foster this specific region. The problems faced by this type of territory, as the Penela Municipality, are primarily focused on improving the local economic base and develop the natural resources, promoting citizenship and entrepreneurship, increasing welfare and social development, tourism promotion and territory identity preservation.

SRLL's major characteristic is the recognition of several weaknesses and constrains in the rural context, and their transformation into a knowledge cluster (shared by companies, universities, research centres, spin-offs and users). Our goal is to produce knowledge around a set of activities previously identified at local/regional level with different agents and capable of foster entrepreneurship, economy, quality of life and citizen commitment with their community.

### Upload the logo of the RLL (if any)



### Sector (The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)

70. Management Consultancy activities

### Contact details of the RLL

#### Contact

Penela Municipality

Praça do Municipio, 3230-253 Penela – PORTUGAL

Contact person:

Luis Matias; Phone: +351 239 560 120 / +351 910 724 044; email: [luis.matias@cm-penela.pt](mailto:luis.matias@cm-penela.pt)

Pedro Ferreira; Phone: +351 239 560 120 / +351 912 229 747; email: [pedro.ferreira@cm-penela.pt](mailto:pedro.ferreira@cm-penela.pt)

### Location

Coimbra, Portugal

### The SME/stakeholder that provided the green solution

#### Name of the SME/stakeholder

#### Description of the SME/stakeholder *(Please shortly include some key information of the company)*

**IPN-Incubator** is a non-profit association whose aim is to spur entrepreneurship and promote the creation of tech based innovative companies and advanced services. Since its founding, over two decades ago, IPN Incubator has supported more than 270 companies, with a survival rate of approximately 80%. In 2016, these companies recorded aggregate sales of around 150 million euros – 60% of which to foreign markets – and employed directly about 2200 highly qualified workers.

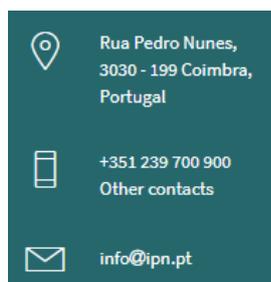
#### Upload the logo of the company/stakeholder



#### Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

70. Management Consultancy activities

#### Contact details of the SME/stakeholder *(Include contact person, location, email, etc.)*



#### Location

Coimbra, Portugal

#### Data Protection

**X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**

**X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the green economy in rural areas.

## T3.2.1 – 4.1.1. LIVERUR Rural Living Lab Case study

### LIVERUR RLL Case study Template

**Please select and upload the appropriate data for your case study.**

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

**What was/is the role of your organisation in the featured case study?**

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

#### Case Study Description

**Short pitch of the solution** (*One-sentence summary of the case study*)

The Laura's case study is about integrating the technologies like digital platforms and the existing tools on the market in the Agriculture and farms .

#### Description of the case study

*A possible outline for a "Rural Living Lab Case Study" to capture necessary information could be the following:*

The RLL named LAURA was created around the experimental farm of "White House" in Normandy supported by the Chamber of Agriculture of Normandy. Initially a digital platform from existing tools on the market, white house, with the idea of disseminating it. We took the Laura's case as this sustainable /green solution because we have a lot in common as green solutions in our project that will integrate the technologies as tools for openness .

**Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.**

D3



**What was/is the type of the sustainable/green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods) Machinery
  - Electrical Equipment
    - Electrical Power Generation Equipment
    - Automation (i.e. how equipment is used)
  - Infrastructure
  - Information Technology
  - Other (please specify)
- Service
  - Education
    - Behavioural Patterns Carbon
    - Social Responsibility
    - Other (please specify)
  - Organizational Methods
    - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
    - Technology Assessment
    - Resource Consumption Audit and Analysis
    - Waste Stream Analysis and Waste Management
    - Restoration and Rehabilitation
    - Other (please specify)
  - Engineering Design / Installation
  - Regulatory Compliance
    - Environmental Impact Assessment
    - Risk Assessment
    - REACH, CLP



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste

Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Polymers Biodegradable

Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass
- Energy and Waste-to-Energy
- Other (please specify)

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization
- 
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- Demonstrated in practice



**Financing**

Private Funds

Subsidy

Bank Loan

Third Party Financing

Other

**Investment costs** (*Turn - key costs*)

N/A

**Operating costs** (*Operational and maintenance costs*)

N/A

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)



**Technical and Human prerequisites**

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

N/A
-----

**Regulatory framework prerequisites and constraints**

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

N/A
-----



**The Rural Living Lab that adopted the sustainable/green solution**

**Name of the Rural Living Lab**

Laura Living Lab

**Description of the RLL** *(Please shortly include some key information of the company)*

That RLL named LAURA was created around the experimental farm of “White House “in Normandy supported by the Chamber of agriculture of Normandy.

**Upload the logo of the RLL (if any)**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

sector for Agriculture and Fisheries

**Contact details of the RLL**

[http://ledome.info/index.php?page=page&id\\_manifestation=1820](http://ledome.info/index.php?page=page&id_manifestation=1820)

**Location**

the experimental farm of “White House “in Normandy

**The SME/stakeholder that provided the sustainable/green solution**

**Name of the SME/stakeholder**

- 1/ Chamber of Agriculture of Normandy
- 2/ The cluster TES
- 3/ Le Dome

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

1/ The Pole Research Innovation and Development, with the partnership with AC3A  
2/(Electronic Secured Transaction)  
3/ Organize cultural and scientific actions; scientific culture and real projects of research and innovation.  
4/ a cellular numeric and data

**Upload the logo of the company/stakeholder**

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Technologies in agriculture sector

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

**Location**

Normandia/France

**Data Protection**

**XThe case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**

**XAuthors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.

**D3.2. Report of "Mapping the living lab technique"**



### T3.2.1.- 4.2.1. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

What was/is the role of your organisation in the featured case study?

- Production of sustainable/green solution
- Distribution / installation of sustainable/  
green solution
- Adoption of sustainable/green solution

#### Case Study Description

Short pitch of the solution *(One-sentence summary of the case study)*

Citizens and local governments in rural villages get together to create collaborative ways to deliver goods and services, communicate, test mobility solutions and roll out e-government through a user-friendly digital platform.

### Description of the case study

Germany's villages and rural areas are affected by the impact of demographic change and rural exodus. This trend constitutes a major challenge: what will happen when the population gets older and older? Will young people and families still move to the village? Will infrastructure with buses, stores, and health care remain? Will there still be companies in rural areas?

The regional government of Rhineland-Palatinate teamed up with the Fraunhofer Institute for Experimental Software Engineering (IESE) to study and develop solutions for integrating mobility and logistics with smart technology in order to add value for local people and businesses, bringing some concepts of smart cities to rural areas.

The project utilises a "living lab" approach. From the outset, ideas for digital solutions were discussed with the residents and other stakeholders, well before any of the subsequent mobile applications or websites were proposed.

Then, an appropriate digital ecosystem (online platform and apps) was set up with:

**local news portal** on which news and events can be quickly and easily distributed: ordinary residents, club representatives or business leaders use the site to share information about opening times, happenings and other points of interest

**marketplace for local vendors** and service providers (online purchase + use of local vendors)

**delivery-service** for the community: citizens can see which packages from the local online shop are still waiting for delivery and bring them to their neighbours

This activity has already generated quantitative and qualitative effects and results, such as:

Ca. 500 users downloading the communication app in the first two weeks of launch

Ca. 700 residents have registered to deliver parcels to their neighbours voluntarily

35 local vendors are using the digital marketplace app, making more than 1500 products available for online purchase

feeling of togetherness within the local community

enabling new forms of voluntary participation

enhancing local sourcing of goods and services

new social contacts have been created through these deliveries

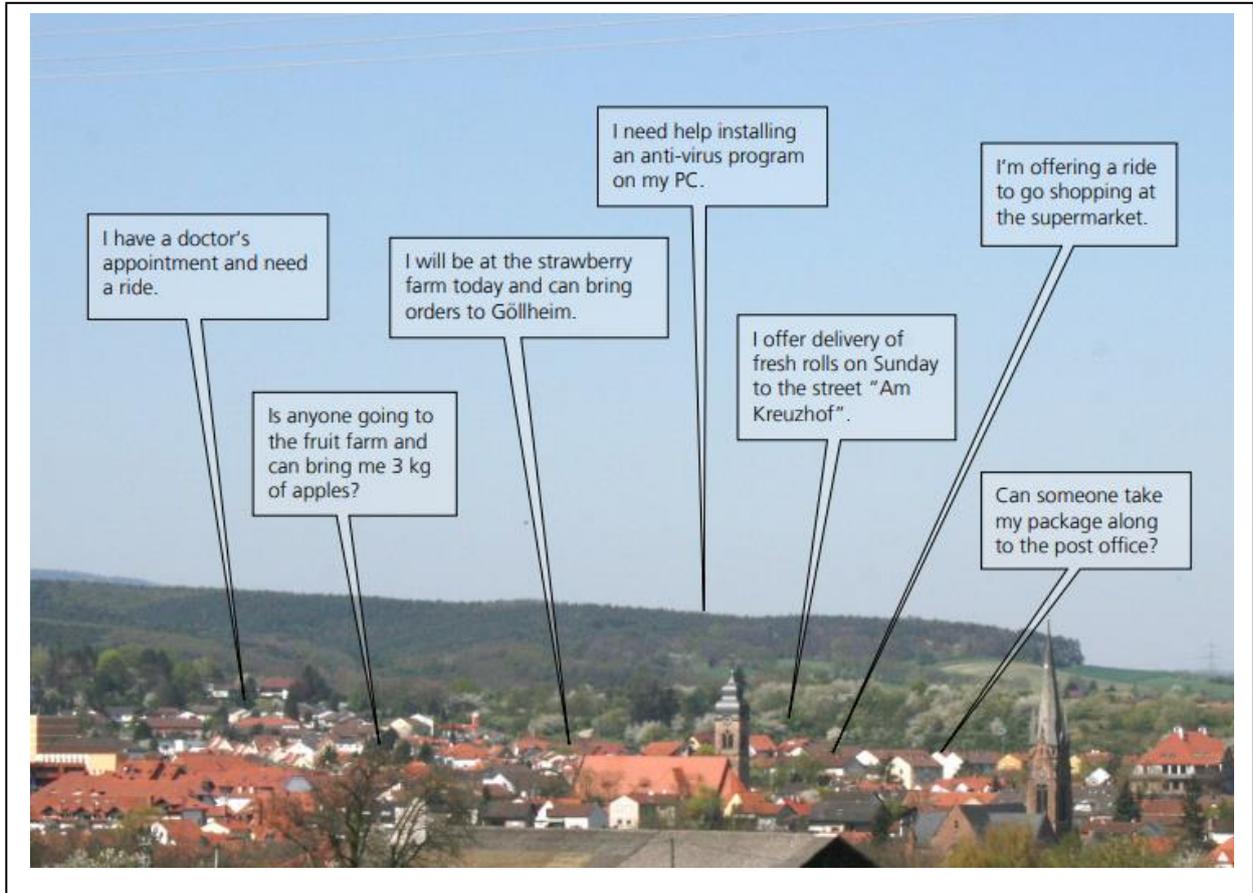
Online marketplace for local service providers and an app to manage the voluntary delivery of parcels solves very real practical problems for those with reduced mobility or with busy schedules and who are unable to collect parcels for themselves

A significant facilitating factor has been the fact that the Digital Villages project is part of the strategic research program Smart Rural Areas of Fraunhofer IESE that has provided public and private funding (4+ mil €). Moreover, the development agency of Rhineland-Palatinate supports the operative aspects as part of its mission to look for solutions for the "life of tomorrow" in the villages.

A barrier to the implementation of such a scheme is the need for initial funding and the following financial sustainability – a business model needs to be developed.

At this stage of applied research, the three municipalities of Betzdorf-Gebhardshain, Eisenberg and Göllheim in Rhineland-Palatinate have received full support and have carried out various cooperation scenarios. The offers developed in this phase are also available to all other municipalities as a purchase offer.

Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.



**What was/is the type of the sustainable/green solution?**

- Technology
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods) Machinery
  - Electrical Equipment
  - Electrical Power Generation
  - Equipment
  - Automation Infrastructure
  - Information Technology
  - Other (please specify)
- Service
  - Education
    - Behavioural Patterns Carbon
    - Social Responsibility
    - Other (please specify)
  - Organizational Methods
    - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
  - Technical Consulting
    - Technology Assessment
    - Resource Consumption
    - Audit and Analysis Waste Stream Analysis and Waste Management
    - Restoration and Rehabilitation
    - Other (please specify)
  - Engineering Design / Installation
  - Regulatory Compliance
    - Environmental Impact Assessment
    - Risk Assessment
    - REACH, CLP



Other

Green Business Model

Other (please specify)

**What does the featured solution contributed to?**

Environmental Protection

Resource Efficiency

Protection of Public Health

Compliance with Regulatory Requirements

Other (please specify)

**Which sector does the case study belong to?**

Materials (e.g. bio based materials, building materials, etc.)

Industrial Processes

Energy Production

Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)

Agriculture and Fisheries

Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste

Treatment and Recycling

Transportation

Buildings

Hospitality

Other (please specify)

**How would you further categorize the sector for Materials?**

Bio-based Materials

Nano-materials Glass

Materials Chemical

Materials Building

Materials Ceramics

Polymers Biodegradable

Products

Other (please specify)

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- 
- Alternative Energy

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization Pest
- and Disease Management Aquaculture
- Other (please specify)
- 

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- Demonstrated in practice

**Financing**

- Private Funds
  - Subsidy
  - Bank Loan
  - Third Party Financing
  - Other Public funding
- 

**Investment costs** (*Turn - key costs*)

N/A

**Operating costs** (*Operational and maintenance costs*)

N/A

**Emission Reductions** (tones/year, specify if otherwise)

n/a

**Energy Consumption Savings** (kWh/year, specify if otherwise)

n/a

**Water Consumption Savings** (tones/year, specify if otherwise)

n/a

**Material Consumption Savings** (tones/year, specify if otherwise)

n/a

**Total Waste Avoided** (tones/year, specify if otherwise)

n/a

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

Technical prerequisites: an adequate smart ecosystem with communication platform, online shop, and downloadable apps.

Human prerequisites: a collaborative Local Government willing to initially invest in terms of funding and resources, including the operative support to citizens and business in order to get acquainted with the platform and tools.

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

Licence / access to adequate platform

Data and Privacy issues to be managed (should be included in the platform developed in the project)



**The Rural Living Lab that adopted the sustainable/ green solution**

Digital Villages – Digitale Dörfer

**Name of the Rural Living Lab**

**Description of the RLL** *(Please shortly include some key information of the company)*

Municipalities of Betzdorf-Gebhardshain, Eisenberg and Göllheim in Rhineland-Palatinate – respectively, ca. 12.000 in., ca. 9.000 in. and ca. 4.000 in.

**Upload the logo of the RLL (if any)**



**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Local Government

**Contact details of the RLL**

**Location**

Municipalities of Betzdorf-Gebhardshain

### The SME/stakeholder that provided the sustainable/green solution

#### Name of the SME/stakeholder

Fraunhofer Institute for Experimental Software Engineering (IESE)

#### Description of the SME/stakeholder *(Please shortly include some key information of the company)*

The Fraunhofer Institute for Experimental Software Engineering IESE is a leading research institute in the area of software and systems engineering methods. Fraunhofer IESE is one of 72 institutes and research units of the Fraunhofer-Gesellschaft. Together they have a major impact on shaping applied research in Europe and contribute to Germany's competitiveness in international markets.

#### Upload the logo of the company/stakeholder



#### Sector *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Applied Research private Institute

Steffen Hess E-Mail: steffen.hess@iese.fraunhofer.de

Telefon: +49 (631) 6800 2275

#### Contact details of the SME/stakeholder *(Include contact person, location, email, etc.)*

#### Location

Kaiserslautern (Germany)

### Data Protection

- The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.
- X Authors of the case study agree the material provided to become available in public in part or as a whole.

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.



### T3.2.1.- 4.3.1. LIVERUR Rural Living Lab Case study

#### LIVERUR RLL Case study Template

Please select and upload the appropriate data for your case study.

Uploading a case study allows you/your organisation and/or Rural Living Lab to profile your experiences and network with other stakeholders. Your experiences will also help to improve policy, research and innovation actions for supporting the local and territorial stakeholders make the transition to a more sustainable and greener rural economies.

Please select the dominant circular or green economy area of your Rural Living Lab case;

- 1. Environment and Resilience
- 2. Resource efficiency efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies

#### The main role of your organisation

What was/is the role of your organisation in the featured case study?

- Production of sustainable/green solution
- Distribution / installation of sustainable/ green solution
- Adoption of sustainable/green solution

#### Case Study Description

**Short pitch of the solution** *(One-sentence summary of the case study)*

RLL located in the region of Vojvodina (Serbia) focused in Precision Agriculture and promoting the use of advanced ICT technologies to local farmers, developing win-win synergies between providers and farmers.

**Description of the case study**

D3.2. Report of "Mapping the living lab technique"

A possible outline for a “Rural Living Lab Case Study” to capture necessary information could be the following:

1. Background (general information setting the landscape of the RLL initiative/solution/action);
2. Reasoning (why did your organization undertake this sustainable/green solution?);
3. Process (what steps were followed in order to implement and maintain the sustainable/green solution?);
4. Effects/Results (what were results/effects observed from the implementation of the sustainable/green solution?  
How does the sustainable/green solution benefit the environment?);
5. Facilitating factors (what factors enabled this good practice to take place?);
6. Barriers/challenges (what barriers/challenges did your RLL/ organization face?);
7. Lessons learnt (what worked particularly well? What would you do differently next time? What advice would you give to another organization wishing to implement this solution?

The above outline covers questions often asked. They are for guidance only; additional information should be added accordingly in order to bring the case study alive.

The LL PA4ALL is a result of a previous FP7 project, which was aimed at support start-ups and SMEs across Europe and help them in better market penetration of their innovative ICT for agrifood solutions based on FIWARE technology. PA4ALL found an ecosystem favourable to its development in the Vojvodina region (Serbia), which demonstrates a particularly strong agricultural sector. Accordingly, the local socio-economic system is based on provision of relative services to end-users (farmers). Therefore, the region is an **ideal test bed** for applying the LL approach, since a lively “community”, namely a dynamic **value-chain of stakeholders** (including farmers, industry, government and civil society stakeholders) that can be involved in the participatory innovation approach already exists in the region. The LL also emerged as a result of the long-term, continuous cooperation between BioSense Institute (Host Organization), which is a multidisciplinary group of scientists (ICT, Agriculture, Environmental Engineering, Ecology etc) and the local stakeholders of the region.

- SMEs specialized in ICT for agriculture
- End users, farmers and agricultural enterprises
- The Regional Government of Vojvodina

The **stakeholders** involved in the LL and their role:

- **BioSense Institute – University of Novi Sad** is the host organisation of the LL. Its mission is to conduct research on ICT for agriculture and to make research closer to farmers’ needs. They act as service provider, matching demand of solutions from farmers and offers of solutions from SMEs, but the core of the LL remains to create conditions for encounter and exchange of knowledge and needs between research/SMEs/farmers (through Brainstorming, other workshop to create ideas for solutions, Service design workshop, other workshop to develop the solution together and other methods for user involvement).
- **Farmers and cooperatives of farmers** are the testers of the innovative ICT solutions provided by BioSense.
- **ICT SMEs specialised in agriculture**, they provide feedback from the market on technologies used.
- **Regional Government of Vojvodina:** provides institutional support to BioSense Institute, giving more “credibility” when presenting the project to farmers.

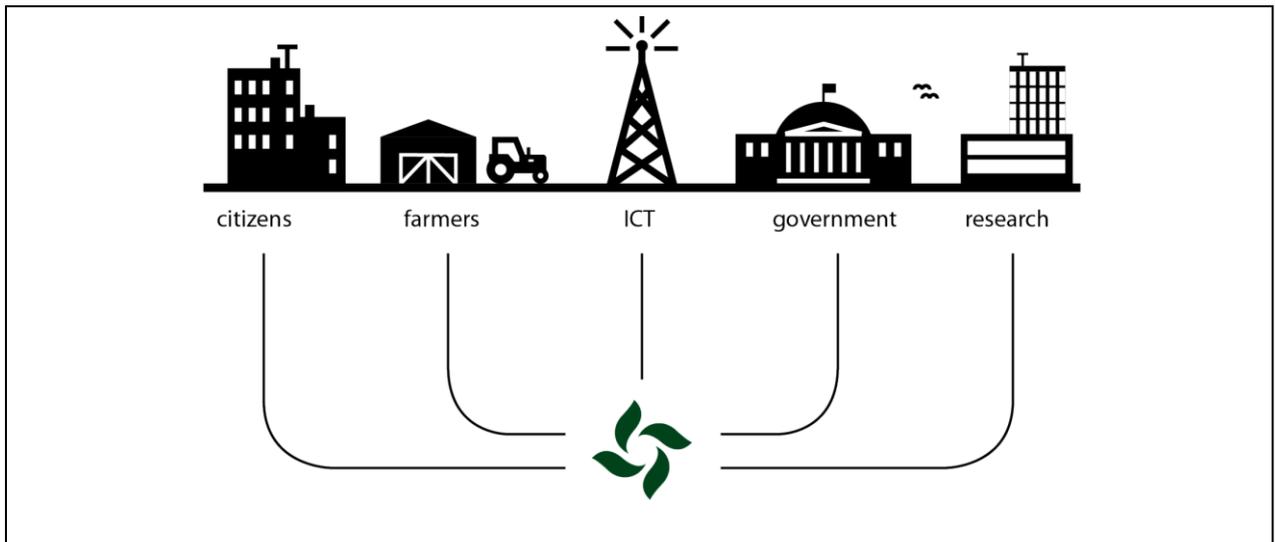
The regional agriculture, despite its huge potential, still employs mostly traditional methods, while the local ICT industry, employing around 10.000 people in Novi Sad only, is mostly acting as a subcontractor of European companies and thus operating at low margins and not capturing long-term added value.

As results BioSense provides the connecting link in the value chain by:

- Promoting the use of advanced ICT technologies to local farmers and assisting them in improving their performance and complying with environmental regulations;
- Developing win-win synergies with agri-business support companies of the region (providers of fertilizers, pesticides, consulting services), that currently consist the most agile and motivated link in the value chain, since they have both direct access to farmers and clear motives to introduce advanced technologies as complimentary services to their existing portfolio;
- Encouraging the local ICT sector to move towards a paradigm-shift, namely from a strategy based on outsourcing that simply exploits the relative low wage costs of developers, to one that is based upon the competitive strengths of the entire regional eco-system and the exploitation of own solutions, with significantly higher added value.

Source: Stakeholder questionnaire T3.1 [https://biosens.rs/?page\\_id=7697&lang=en](https://biosens.rs/?page_id=7697&lang=en)  
<https://enoll.org/network/living-labs/?livinglab=precision-agriculture-living-lab#description>

Upload illustrative features, like diagrams, pictures, flowcharts, etc. relevant to the case study.





**What was/is the type of the sustainable/green solution?**

- Technology**
  - Raw Materials
  - Pre-fabricated Structures
  - Chemicals and Compounds
  - Products (Goods)
  - Machinery
  - Electrical Equipment
  - Electrical Power Generation
  - Equipment Automation
  - Infrastructure
  - Information Technology
  - Other (soft infrastructure)
- Service**
  - Education
    - Behavioural Patterns
    - Carbon Social Responsibility Other (please specify)
    - Organizational Methods
  - Development and Implementation of Environmental Management Systems
    - Environmental Auditing
    - Carbon Footprint Analysis and Monitoring
    - Other (please specify)
- Technical Consulting**
  - Technology Assessment
  - Resource Consumption Audit and Analysis
  - Waste Stream Analysis and Waste Management
  - Restoration and Rehabilitation
  - Other
- Engineering Design / Installation
- Regulatory Compliance
  - Environmental Impact Assessment
  - Risk Assessment
  - REACH, CLP



- Other
- Green Business Model
- Other (please specify)

**What does the featured solution contributed to?**

- Environmental Protection
- Resource Efficiency
- Protection of Public Health
- Compliance with Regulatory Requirements
- Other (please specify)

**Which sector does the case study belong to?**

- Materials (e.g. bio based materials, building materials, etc.)
- Industrial Processes
- Energy Production
- Resource Efficiency (e.g. water efficiency, fuel efficiency, etc.)
- Agriculture and Fisheries
- Protection of Natural Resources (e.g. air pollution prevention and mitigation, etc.) Waste
- Treatment and Recycling
- Transportation
- Buildings
- Hospitality
- Other (please specify)

**How would you further categorize the sector for Materials?**

- Bio-based Materials
- Nano-materials Glass
- Materials Chemical
- Materials Building
- Materials Ceramics
- Polymers Biodegradable
- Products
- Other : precision agriculture
- 

**How would you further categorize the sector for Industrial Processes?**

The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used.

**How would you further categorize the sector for Energy Production?**



- Conventional Energy
- Alternative Energy Other (specify) Conventional Energy
- 

**How would you further categorize the sub-sector for Alternative Energy Production?**

- Wind Energy
- Solar Energy
- Geothermal Energy
- Tidal Energy
- Bio-fuels Biogas
- Biomass Energy and Waste-to-Energy
- Other (please specify)
- 

**How would you further categorize the sector for Resource Efficiency?**

- Energy Efficiency
- Fuel Efficiency
- Raw Material Efficiency
- Water Efficiency
- Land/Soil Efficiency
- Other (please specify)

**How would you further categorize the sector for Agriculture and Fisheries?**

- Food and Feed Management
- Land Management and Fertilization
- Pest and Disease Management
- Aquaculture
- Other (please specify)

**How would you further categorize the sector for Protection of Natural Resources?**

- Air Pollution Prevention and Mitigation
- Water Pollution Prevention and Mitigation
- Soil Pollution Prevention and Mitigation
- Protection of Biodiversity
- Other (please specify)

**How would you further categorize the sector for Waste Treatment and Recycling?**

- Solid Waste Management



- Waste Water Treatment Hazardous
- Waste Management End of Life
- Product Recovery Material
- Reclamation
- Waste Exchange
- Other (please specify)

**How would you further categorize the sector for Transportation?**

- Vehicle Technology
- Vehicle Fuels
- Fuelling and Charging Infrastructure
- Traffic and Route Management
- Driving Patterns and Choice of Transport Modes
- Other (please specify)

**How would you further categorize the sector for Buildings?**

- Building Design Building
- Automation Insulation
- Lighting
- HVAC (heating, ventilation and air conditioning)
- Other (please specify)
- 

**How would you further categorize the sector for Hospitality?**

- Accommodation
- Travel and tourism
- Food and beverage service
- Sporting events
- Other (please specify)

**Information for Solution Assessment**

**Maturity of the solution**

- Available
- Emerging
- Demonstrated in practice

**Financing**

- Private Funds
- Subsidy
- Bank Loan
- Third Party Financing
- Other

Other: EU funds

**Investment costs** (*Turn - key costs*)

**Operating costs** (*Operational and maintenance costs*)

**Emission Reductions** (tones/year, specify if otherwise)

**Energy Consumption Savings** (kWh/year, specify if otherwise)

**Water Consumption Savings** (tones/year, specify if otherwise)

**Material Consumption Savings** (tones/year, specify if otherwise)

**Total Waste Avoided** (tones/year, specify if otherwise)

Not known

### Technical and Human prerequisites

*Technical prerequisites refer to the technical compatibility (meaning the perceived consistency of a green solution with the incumbent infrastructure and overall experiences of the SME/other stakeholders) and human prerequisites refer to the in-house expertise required for the implementation of the solution.*

Technical prerequisites: high-level expertise of the BioSense institute and ICT companies; existing cooperation among the regional stakeholders.

Human prerequisites: the BioSense Institute has the expertise to animate the territory and facilitates collaboration and knowledge transfer of all actors involved.

### Regulatory framework prerequisites and constraints

*Regulatory prerequisites and constraints may involve licenses, permits and other obligations needed to be addressed during the implementation of the green solution.*

Environmental regulations



**The Rural Living Lab that adopted the sustainable/green solution**

**Name of the Rural Living Lab**

PA4ALL

**Description of the RLL** *(Please shortly include some key information of the company)*

Rural living lab promoting innovating ICT solutions for the agriculture sector

**Upload the logo of the RLL (if any)**

Not available

**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Agriculture, forestry and fishing

**Contact details of the RLL**

[https://biosens.rs/?page\\_id=7697&lang=en](https://biosens.rs/?page_id=7697&lang=en)

**Location**

Serbia, Vojvodina region

**The SME/stakeholder that provided the sustainable/green solution**

**Name of the SME/stakeholder**

BioSense Institute

**Description of the SME/stakeholder** *(Please shortly include some key information of the company)*

Research and Development Institute for Information Technologies in Biosystems.

**Upload the logo of the company/stakeholder**



**Sector** *(The International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 is used)*

Agriculture, forestry and fishing

**Contact details of the SME/stakeholder** *(Include contact person, location, email, etc.)*

[https://biosense.rs/?page\\_id=6597&lang=en](https://biosense.rs/?page_id=6597&lang=en)

**Location**

Serbia, Novi Sad

**Data Protection**

- X The case study does not involve sensitive topics, confidential information, or identifiers that could place a participant at risk if disclosed or any other sort of third party information without their consent.**
- X Authors of the case study agree the material provided to become available in public in part or as a whole.**

We appreciate that writing a best practice case study can be a time-consuming process and we are grateful for sharing the detailed, value-adding best practices from your organization. We believe this will be of benefit not only to your organisation but to the wider community of Rural Living Lab wishing to participate in the transition to the sustainable/green economy in rural areas.



**Annex VI. T3.2.2. Rural Living Lab Case studies on transition to the circular economy**

**LIVERUR RLL Case study Template**

<b>RLL_X_ Case study</b>	<b>1.Environment and Resilience (Team leader: AWI)</b>	<b>2.Resource efficiency efficacy &amp; management (Team leader: FRCT)</b>	<b>3.Competitiveness of SMAEs &amp; rural value Chains (Team leader: TRA)</b>	<b>4.Openness to new markets and technologies (Team leader: CEA)</b>
RLL_1_Ca se Study	1.1.2.Habitat Living Lab (Brazil)	2.1.2.CISA- Victoriaville: l' ARTERRE Living Lab (Canada)	3.1.2. ZumaiaLab (Spain)	4.1.2. Laura Living Lab (France)
RLL_2_Ca se Study	1.2.2.Paradies Südburgenland (Austria)	2.2.2. Madonie Living Lab (Italy)	3.2.2. I-Danha Food Lab (Portugal)	4.2.2.Digital Villages (Germany)
RLL_3_Ca se Study	1.3.2. Arche Noah (Austria)	2.3.2. AcadieLab (Canada)	3.3.2 SmartRural Living Lab (Portugal)	4.3.2. PA4ALL – the Living Lab in Precision Agriculture (Serbia)
RLL_4_Ca se Study		2.4.2. TEZIO TRASIMENO (Italy)		

**T3.2.2. – 1.1.2. LIVERUR Rural Living Lab Case study**

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2. - 1.1.1. RLL Case Study on the Environment and Resilience Habitat Living Lab (Brazil)</i>
RLL Case 1. Step 1: Defining the baseline	Low income communities with a lack of economic power and environmental awareness, with a low educational level
Step 2: Defining the new business case	Social network ecosystem for education and research with emphasis on environmental friendly technologies especially in the building sector. Technological and social innovation network aiming at promoting local development through the development of technological and social solutions with the objective of providing basic human needs such as housing, energy, adequate treatment and disposal of solid waste New businesses created started from the reuse of construction materials.
Step 3: Changes in the key sector	Stronger relations between university civil society, private companies and non-governmental organizations, more activities in the building sector
Step 4. Expected effects on other parts of the economy	Spill over effects on other upstream and downstream industries of the building sector.
Step 5: The impact environment & society	More awareness for environmental aspects and resource efficiency in the building sector and for collaboration. Improvement of the housing conditions and life quality of the community/society. Generation of new social organizations and promotion of local development due to the projects generated in the Habitat LL. Promotion of participatory behaviors in the reference communities
Step 6. Are alternatives available?	?
Step 7: Policy options	Support of such activities on a bigger scale, involve regional authorities, integrate waste disposal system to push transition to circular living lab. Connection of the platform to other (if existing) public managed platforms for participation and co-design.



### T3.2.2. – 1.2.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>1.2.2. RLL Case Study on the Environment and Resilience Paradies Sud-Burgenland</i>
RLL Case 1. Step 1: Defining the baseline	Various enterprises in the agricultural and tourism sector in a peripheral region but favored in terms of natural conditions
Step 2: Defining the new business case	Cooperation and common events and organization of various enterprises of the region. . Common definition of a regional brand based on the territory agro-food excellences.
Step 3: Changes in the key sector	Better (in quality and quantity) offers for consumers in the agricultural and touristic sector. . Better incomes and hospitality management for the SMEs member.
Step 4. Expected effects on other parts of the economy	Maybe spill-over effects to non-participating enterprises for supply of tourists and touristic enterprises and various infrastructures
Step 5: The impact environment & society	Maybe more awareness of the amenity of the landscape, of natural conditions and cultural heritage as these are the basic conditions for the business. Therefore also more sustainability awareness. Improvement of social infrastructure because of higher frequencies... Higher opportunities for youth employment in rural areas in different sectors.
Step 6. Are alternatives available?	Peripheral region with attempts to create jobs also in other sectors
Step 7: Policy options	Financial and organizational, infrastructural support of theses cooperative activities, initial support and longterm support, difficult to keep activities alive without support. . Set up framework for involving citizens, local CSO in the Paradiesregion. Include a citizen science approach to further develop the concept and optimize results. Integrate the cooperative approach in regional/national policies for territorial promotion.



### T3.2.2. – 1.3.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2. - 1.3.2. RLL Case Study on the Environment and Resilience Arche Noah (Austria)</i>
RLL Case 1. Step 1: Defining the baseline	Out of various economic and other reasons agriculture shows a decrease in diversity of cultural plants. , Small scale farmers have troubles competing on the market.
Step 2: Defining the new business case	The new business wants to preserve various traditional seeds and foster diversity in agriculture and gardening and general biodiversity, acts also as information exchange platform. It wants to build up a collaborative structure between farmers and citizens that aims to strengthen local and regional agricultural products.
Step 3: Changes in the key sector	Through various activities- not only in preserving and selling seeds - but also in information, training activities, organizing events... the awareness for traditional seeds is rising, mutual exchange among farmers, researchers, private people
Step 4. Expected effects on other parts of the economy	Availability of a high variety of seeds is guaranteed. Cultivation, processing and marketing of traditional seeds becomes more attractive also for non- participating people.
Step 5: The impact environment & society	Impact on society: The awareness for the significance of traditional seeds and a high agricultural and general biodiversity is rising. Consumption and production patterns are changed. Impact on environment: biodiversity protection and conservation, more sustainable farming. Potential impacts on policies related with crop biodiversity or contributions to policy coherence (the Common Agriculture Policy (CAP). Potential in contributing to keeping biodiversity worldwide (even in third countries). <ul style="list-style-type: none"> <li>• Food quality schemes (Geographical Indications, Organic Agriculture) • Seed and Plant Marketing Laws • Intellectual Property Rights (Plant Variety and Patent Protection) • Biosafety Law (Breeding Techniques, GMOs) • Biodiversity Policies</li> </ul>



Step 6. Are alternatives available?	Widening the network, de-centralized; organization. Slowfood is doing something similar, especially in international cooperation in third countries: <a href="https://www.slowfood.com/what-we-do/preserve-biodiversity/">https://www.slowfood.com/what-we-do/preserve-biodiversity/</a>
Step 7: Policy options	Support of the activity, support of widening the network. Subsidies for small scale farming linked to diversity criteria; taxes on monocultures and industrial farming,

### T3.2.2. – 2.1.2. – 2.2.2. – 2.3.2. - 2.4.2. LIVERUR Rural Living Lab Case study

**Please continue your work on the selected and analysed 3 Rural Living Labs in T3.2.1. , following the Step-by-step methodology of case studies to circular economy with your working group.**

Your Rural Living Lab case:

- 1. Environment and Resilience
- X 2. Resource efficiency, efficacy and management
- 3. Competitiveness of SMAEs & rural value chains
- 4. Openness to new markets and technologies



<p><i>Step-by-step approach structuring the case studies on transition to the circular economy</i></p>	<p><i>T3.2.2. – 2.1.2. RLL Case Study on Resource efficiency, efficacy and management</i></p> <p><i>VICTORIA VILLE</i></p>
<p>RLL Case 1.</p> <p>Step 1: Defining the baseline</p>	<p>Created in June 2009, the Centre for Social Innovation in Agriculture (CISA) is a research centre established at Cégep de Victoriaville. Its mission is to drive quality thinking and applied research projects leveraging social innovations to generate results of practical relevance to the agro-food sector and society. Through structuring projects, CISA aims to create added-value for the entire agricultural sector for the benefit of producers, companies, territories and companies. CISA's services are delivered through applied research, training, knowledge transfer, technical assistance and citizen education. Today, several regional and international factors represent significant issues for stakeholders of Quebec's agriculture and agro-food industry. Examples include: globalization and the offer of emerging countries, the concentration of the industries, energy and agro-environment preoccupations as well as concerns related to food sovereignty and farm succession. These challenges require increased awareness, the reconsideration of current practices and the development of innovative solutions.</p> <p>For the CISA, these issues represent opportunities for new reflections and for creative analyses that lead to the development of solutions focused on immediate and pragmatic results.</p>



<p>Step 2: Defining the new business case</p>	<p>Polystyrene is one of the most difficult to recycle plastic resins. In Quebec, the second most populated province, there is an access rate of only 17% for recycling of this material (2017 Report). (<a href="https://www.plastics.ca/PlasticTopics/RecyclingPlastics/BestPracticesCaseStudies">https://www.plastics.ca/PlasticTopics/RecyclingPlastics/BestPracticesCaseStudies</a>)</p> <p>CISA aims to explore innovative practices for the providing access to the recycling of Polystyrene plastic, by:</p> <ul style="list-style-type: none"><li>- Challenging to collect separated from all households &amp; farms (municipalities programmes, shops, individual activities);</li><li>- Challenging to raise awareness of use/replace this plastic material;</li><li>- Challenging to introduce new technologies to recycle (scientists, public funds);</li><li>- Challenges of the political administrative framework.</li></ul>
<p>Step 3: Changes in the key sector</p>	<p>The Centre of Social Innovation in Agriculture (CISA) has the objective of developing strategic projects in Quebec and across Canada that create an added value to the agriculture and agro-food sector for the benefit of producers, businesses, regions and societies.</p> <p>The CISA is committed to contribute to the sustainable development of solutions meeting the needs of current and future generations. Throughout our projects, the CISA aims:</p> <ul style="list-style-type: none"><li>● to meet the social needs of stakeholders in the agriculture and agro-food industry</li><li>● to increase the economic efficiency of the agricultural sector</li><li>● to encourage approaches reinforcing the liveability and the viability of human actions</li></ul>
<p>Step 4. Expected effects on other parts of the economy</p>	<p>CISA intends to contribute to agricultural and agro-food development by orienting its research and services among others under the following themes:</p> <ul style="list-style-type: none"><li>-Establishment of succession and transfer of farms.</li><li>-Economics and agricultural management.</li><li>-Sustainable food systems.</li></ul>



	<ul style="list-style-type: none"><li>-Commercialisation</li><li>-Transport and agro-food distribution.</li><li>-Food safety.</li><li>-Support for the appropriation of new technologies by users.</li><li>-Health and well-being of agricultural producers and rural communities.</li><li>-Waste management.</li><li>-Governance and social acceptability.</li></ul>
Step 5: The impact environment & society	<p>Were identified impacts in:</p> <ul style="list-style-type: none"><li>Waste management, incl. processing;</li><li>Social awareness;</li><li>Long term impact on environment;</li><li>Governance and social acceptability.</li></ul>
Step 6. Are alternatives available?	No information available.



Step 7: Policy options	<p>The facilitating factors Each LLs members role + public funds:</p> <ul style="list-style-type: none"><li>- 1/ CISA: is the support of the living-lab. CISA provide services, -like establishing a relationship with the customers to understand their specific needs, designing and undertaking case studies and pilot projects to study the targeted issues, conducting rigorous analyses, transferring the knowledge acquired...</li><li>- 2/ Gestera 24 local authorities in the state of Quebec</li><li>- 3/ Agricultural Union of farmers: in the beginning 35 farms dairy farms, cattle farms, crops farms, truck farming, contribute to the idea, participate to scenarios.</li><li>- 4/ Government du QUEBEC: bring 80% of research founds.</li></ul>



<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	T3.2.2. – 2.2.2. RLL Case Study on Resource efficiency, efficacy and management <u>ACADIE LAB</u>
RLL Case 2. Step 1: Defining the baseline	A watershed of intensive agriculture in south of Canada, all around the Acadie river: 70 big farms, mainly dairy farms and truck farming, operating in a very cold winter climate. Practices of farmers have heavy consequences about water quality: nitrogen, phosphorus.
Step 2: Defining the new business case	<p>Acadie-lab aims to co-construct with stakeholders: researchers, agronomist, social scientist, and farmers new practices for the rehabilitation of agro-eco-systems adapted to the diversity of productions system and farmers.</p> <p>A chart has been elaborated first off all by Acadie-lab , to define the possible objects and the methodology.</p> <p>The found mobilized for Acadie lab come from the state of Quebec mainly.</p> <p><b>Long cycle of one year minimum is required for action:</b> 5 steps are required: Planification (autumn) Exploration by possibly co-design (winter) Experimentation of practises (spring) with both the agronomic and farmer and for the end Evaluation (autumn and winter),</p> <p><b>Ex : Year 1:</b> Farmers chosen covering plants :Exploration time : What I’m doing to put in place that covering plant ? Some farmers explained some difficulties about technics knowledge, about how to put in place that plant; how to seed it? Is it possible to seed that plant both while seeding the maize? We constitute a group of five farmers to experiment the right and new technics those experimental farmers will become the best in the practise a few year later.</p> <p><b>EX Year 2:</b> farmers decided to test 10 news TK and practising: Taking care of river, nitrogen optimisation (necessity of a tool to simulate the effects of the new practising on the farms in the long times...)</p> <p><b>Continued evaluation process :</b></p> <p>Follow up , monitoring is necessary to establish, about the agro system, about the farms, about the territory</p>



	<p>governance, about the team of intermediation itself,</p> <p>-</p>
Step 3: Changes in the key sector	<p>An approach that breaks with the mechanisms beginning with common understanding of the problems, and leads to a shared action plan.</p> <p>Rapid implementation of concrete actions chosen by farmers is preferred.</p> <p>This approach focuses on farmer's cultivation of innovation:</p> <ul style="list-style-type: none"><li>- Challenge of the professional identities of agronomists and experts ( now co-construction attitude before they were advisors )</li><li>- Challenge of the farmers identities: before resistant to change to co-constructive attitude.</li><li>- Challenge of the politico administrative framework, because governance is actually mainly made by norms.</li></ul>
Step 4. Expected effects on other parts of the economy	<p>Expected effects:</p> <ul style="list-style-type: none"><li>- Long term improvements of water quality (nitrogen, phosphorus,. Pesticides)</li><li>- Make farmers active by testing new solutions about farmers practising</li><li>- changing the image of farmers in society by choosing some solutions by themselves with the help of agronomics and researchers</li></ul>



Step 5: The impact environment & society	<p>The impact expected by Acadie-lab:</p> <ul style="list-style-type: none"><li>- Co construction of new practises for farmers about Management of the nitrogenous fertilization, about protection of the boarding of rivers...</li><li>- Protect the environment in the long terms ( a few years )</li><li>- The object is to induce a long-term change in the behaviour of the territory in their relationship to the agro system, by developing individual and collective capacities for the action at the watershed level.</li></ul>
Step 6. Are alternatives available?	<p>The other way of action are not very productive still now days in that type of contexts of intensive zone of production if we want to have and develop a productive agriculture.</p> <p>Alternative is possible to converse some parts of the watershed into forest, grass, or organic production agriculture...with big consequences in the economy, the employment</p>
Step 7: Policy options	<p>Policy is not a priority within this type of approach, but it can be useful to implement this kind of bottom-up methodology. This Living Lab gives the action to farmers first (bottom-up approach) and only after they involve researchers and other actors to solve their problem. Their approach breaks with the classic mechanisms beginning with a common understanding of the problem and leads to a shared action plan.</p>



<b><i>Step-by-step approach structuring the case studies on transition to the circular economy</i></b>	<b><i>T3.2.2. – 2.3.2. RLL Case Study on Resource efficiency, efficacy and management</i></b> <b><i>MADONIE LIVING LAB</i></b>
RLL Case 3: Step 1: Baseline	MADONIE LIVING LAB acts as a territorial innovation hub, interconnecting the pillars of the local sustainable development strategy in the rural area of Madonie (renewable energy, overall landscape protection, eco-agriculture and sustainable tourism promotion), through an appropriate and collaborative solution generation process.
Step 2: Defining the new business case	<p>Madonie Living Lab has specialized and expanded previous experiences, piloted in the territory under EU funded projects, within the process of implementing the National Strategy for Internal Areas (SNAI). The local community chose to address in a systemic way the issues relating to mobility services, schools and health, with the view of a sustainable and inclusive growth, and to optimize the integration of the ordinary development policies for citizens' services, supported by national funds, with extraordinary actions, supported by EU structural funds. Madonie is now going to use the Madonie LL as a general methodological framework leverage to further facilitate the process of participatory planning and to experiment and consolidate the involvement of citizens, administrators and local companies in co-design of platforms and services connected to their prior challenges.</p> <p><i>Madonie LL supports the strategic development of the Madonie territory through four steps: 1. vision at the political and administrative level and participation, maximising local value creation, raising awareness of the administrators, empowering the communities; 2. knowledge and design thinking through the analysis of data in different sectors, promotion of idea-generation initiatives; 3. implementation of pilots and demos involving users and citizens by the demonstration of appropriate technologies in relevant, open environments; 4. business and management models.</i></p>



<p>Step 3: Changes in the key sector</p>	<p>The Madonie Experience proved to be an effective and successful application of an inclusive and sustainable territorial development policy in line with 2030 EU Agenda. The Living Lab project will represent a smart observatory of citizens with reference to the realisation of advanced systems of analysis and processing of data at a territorial scale for governance support, as well as to the pro-active participation of civil society in the protection of land and reduced consumption of resources. It will support experimentation and demonstration through pilot systems, facilitating the integration of productive chains, participatory business models, exchange of expertise to support executive design and planning and transformative process of projects/ideas into objects. It will foster creativity and sense of ownership of local resources, strengthening territorial identity and social cohesion.</p>
<p>Step 4. Expected effects on other parts of the economy</p>	<ul style="list-style-type: none"><li>-Integrated and certified management of the agro-forestry heritage, including the exchange of credits deriving from carbon dioxide, biodiversity management and certification of the wood supply chain.</li><li>-Integrated and certified management of water resources.</li><li>-Production of energy from local renewable sources such as hydroelectric micro-plants, biomass, biogas, wind power, cogeneration and bio methane.</li><li>-Development of sustainable tourism capable of enhancing local production.</li><li>-Construction and sustainable management of the building heritage.</li><li>-Energy efficiency and the intelligent integration of plants and networks.</li><li>-Sustainable development of production activities (zero waste production).</li><li>-The integration of mobility services.</li><li>-The development of a sustainable farm model that is also energy independent through the production and use of energy from renewable sources.</li></ul>



<p>Step 5: The impact environment &amp; society</p>	<p>The main goal of the strategy is to experiment an innovative energy model, which includes energy savings and energy production issues with the general framework of establishing a local Green Community. The strategy envisages holistic approach to reach the target of 100% of renewable energy in the next 10 years. Today, around 52% of electricity is provided by renewable energy in the Madonie area. The strategy foresees a participatory approach among the 21 local communities of the Madonie. The core idea is that the diffusion of green technologies needs to be accompanied by social innovation in local communities. The strategy hence involves local public administrations, entrepreneurs, families, schools and citizens' associations: everybody can contribute to the challenge of cultural change of the Madonie horizon. All the local actors are involved as "prosumers": both producers and consumers of energy services, interested to reduce the consumption and the costs as well as to improve the quality of environment and life.</p>
<p>Step 6. Are alternatives available?</p>	<p>There are other ongoing projects, for example, a common Sustainable Energy Action Plan (SEAP) of 28 municipalities, aimed to define and realize integrated actions for reducing GHG emissions; interventions of photovoltaic plants in schools and public lighting with LED technology.</p>
<p>Step 7: Policy options</p>	<p>The policy for a more sustainable community of the Madonie has been framed under a larger national program, which aims at developing and funding the strategies of sparsely populated and under-developed areas of the inner parts of Italy. The participatory process was a mandatory requirement for the candidacy; however, the Madonie made participation as a core element of the strategy, by involving stakeholders (institutions, experts, schools, business actors, citizens) both in the definition of the program as well as in its implementation. The calls for interest have been participatory tool for engaging partners but also for preventing conflicts on land use: this was the case of the construction of 6 small recycling/biomass processing plants. At the same time participatory and networking actions have been implemented to promote the establishment of innovative energy FabLabs in the schools and the territorial Madonie LL. The participatory process was also devoted to foster behavioural transition and adopt more sustainable means of energy use and production. An example is the adoption of pellet stoves by citizens and the production of pellets by exploitation of forestry and rural resources.</p>



<p><i>Step-by-step approach structuring the case studies on transition to the circular economy</i></p>	<p><i>T3.2.2. - 2.4.2. RLL Case Study on Resource efficiency efficacy and management</i></p> <p><i>Monte Tezio and Trasimeno Area</i></p>
<p>RLL Case 4.</p> <p>Step 1: Defining the baseline</p>	<p>This territory is an <b>example of potential Living Rural Lab</b>, with a large possibility to integrate rural, food and beverage, and tourism activities. With the principal aim of creating added value. Actually, there are about ten rural tourism farms and about fifty interesting farms that produce cereals, wine, olive oil, pig meat, with a strong inter connection. This kind of local economy could have a bigger development looking to territory, agriculture, tourism and environment (renewable energies).</p> <p><u>LEADER FARMS AND COMPANIES:</u></p> <p>SOCIETA 'AGRICOLA CARINI: sale of wine and sausages</p> <p>MAURIZI FEDERICO: woody biomass harvesting and chipping</p> <p>HOTEL FAINA: accommodation and restaurant</p> <p>PUCCIARELLA SRL: wine and farm sale</p> <p>BORGABELLO SS: rural tourism</p> <p>CAPEHORSE: riding horses</p> <p>AGRICOLA RUFFINI: rural tourism, cooking classes</p>



	<p>INFOTOURIST: organization tours for tourists</p> <p>GOLF CLUB ANTOGNOLLA: golf</p> <p>CAI PERUGIA: hiking and rock climbing</p> <p>UCT: guided visits to the Park of Monte Tezio and Trasimeno</p>  <p>Map data ©2018 Google</p>
<p>Step 2: Defining the new business case</p>	<p>The new business case is to build an area and some structures to offer to citizens and tourists new services and products. The possibility to offer specific classes of regional cooking, ceramics, music, art is a big new opportunity for the people in rural tourism structures.</p>
<p>Step 3: Changes in the key sector</p>	<p>New products and services, new use of renewable resources with use of wastes, by-products and green biomass residues (pruning).</p>



<p>Step 4. Expected effects on other parts of the economy</p>	<p>Development of agriculture, more gains for farmers, growing tourists presences in the territory, add values to farms incomes. The most interesting expected effect is the “fusion” of lake activities (fishing, tourism, water sports, camping hospitality, with internal rural activities characterized by a production of high quality products (olive oil, wine, meat, cereals, and vegetables).</p> <p>ADDED VALUE:</p> <ul style="list-style-type: none"><li>40% increase in the sale of wine and sausages</li><li>40% reduction in the heating cost</li><li>30% increase in hotel business income</li><li>30% increase in the sale of wine</li><li>30% increase in agritourism business income</li><li>30% increase in agritourism business income</li><li>30% increase of agency incomes</li><li>30% increase of golf club incomes</li></ul>
---	--



Horizon 2020



	20% increase of visitors  30% increase of visitors
Step 5: The impact environment & society	Reducing of emissions, reducing of transport effects, and social development of local culture.
Step 6. Are alternatives available?	Activities in continuous development and analysis.
Step 7: Policy options	Advice for obtaining European funds through the Regional Rural Development Plan.



### T3.2.2. – 3.1.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2. – 3.1.2. RLL Case Study on Competitiveness of SMAEs &amp; rural value chains Zumaia Living Lab</i>
RLL Case 1. Step 1: Defining the baseline	In a small peripheral coastal town of Zumaia the number of tourists has remarkably risen (due to UNESCO Geopark and filming of scenes for the blockbuster TV series Game of Thrones). The town is not prepared for such crowds and the residents and businesses started to turn into an anti – tourism mood.
Step 2: Defining the new business case	It is necessary to change the attitudes, find out new business approaches and make the tourism boom a chance for local business growth and heritage(natural and cultural) promotion.
Step 3: Changes in the key sector	Thanks to the tourism living lab a multistakeholder consortium was addressed through questionnaires and later through two LL sessions. First strategic points were identified, second session linked out five further project topics to be solved. The stakeholders started to think as a team in many ways.
Step 4. Expected effects on other parts of the economy	Apparently the multistakeholder approach brought more insight in the needs of the municipality and business management of the tourism wave. Mutual agreement with “new tourism policies” crystalised in the need for a tourism keeper/trainer post. Once positive attitudes towards growing numbers of tourists appear, this would bring a chance of growth and prosperity to almost every business in the location.
Step 5: The impact environment & society	Though not mentioned much, the prototyped projects would influence both society and environment: 1. “As Old as Alive” blended heritage, the Basque language and the natural environment. Touristic routes and sites where the new idea could take root. 2 “Management of Tourism Spaces”. Aimed at stablishing a code of behaviour for visitors attracted by Game of Thrones. This was aimed at creating a new position, called the “tourism keeper/trainer.” 3“Tourism Synergy Activator”. Addressed how to stablish an ecosystem of start-up and spin-off in the field of scientific tourism and was linked to the UNESCO Basque Geopark.



	<p>4“Multilevel Public Governance”, was a means to better coordinate public policy in tourism between institutions and to set up a regionally based tourism open data observatory.</p> <p>5“Tourim infrastructure”, focused on the level of coherence in the use of the physical environment, such as bulidings and road networks.</p>
Step 6. Are alternatives available?	The LL ran in a limited period of one year (2017). Suppose the multi stakeholder partnership will not die out and will be ready to adapt some of the ideas to changing conditions.
Step 7: Policy options	Some were set in the Multilevel Public Governance project
Step 8. Draw overall conclusions	A chance to change local attitudes and meaning through multi stakeholder cooperation



### T3.2.2. – 3.2.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<b>T3.2.2. – 3.2.2. RLL Case Study on Competitiveness of SMAEs &amp; rural value chains i-Dahna Food Lab (Portugal)</b>
RLL Case 1. Step 1: Defining the baseline	AgriTech – FoodTech and CleanTech Accelerator program for start-ups in i-Dahna Food Lab, Portugal. BGI and Idanha-a-Nova’s Municipality partnership started in 2016, and the goal has always been the same: stop Idanha-a-Nova’s desertification.
Step 2: Defining the new business case	As BGI is an MIT Portugal initiative aiming at accelerating deep technology startups, it comes up with a technology-related solution. Hence, since then, it was started the path to build a hub of technologies for food production that do not use artificial chemicals, genetically modified seeds, and that would use technology innovation to increase efficiency avoiding resources waste. Every year these two entities organize an annual event to present the results and ideate on how to improve, close deals and boost the technologies that belong to this organic agriculture “showroom”. During 7 months, the accepted ventures receive in-kind support up to 15 000 euros, mainly for prototype verification and Business Model validation, directly with suppliers and clients, such as farmers. During the mentoring program, the selected projects have access to experienced business catalysts, expert mentors, investors, corporates, introductions and connections to the start-up ecosystem from the BGI’s network.
Step 3: Changes in the key sector	The areas of interest for this acceleration program are: <b>AgriTech</b> – Sustainable agriculture in all value chain, e.g. Aquaponics, Hydroponics, Bioponics, Farm Robots, Parameterization/controlling systems <b>FoodTech</b> – New gastronomy techniques, using macrobiotics food, macrobiotic and endogenous resources from Idanha, e.g. Robotization of bakeries, new transformation/food systems. <b>TechDistribution</b> – New channels for biological foods distribution in better maintenance conditions, e.g. Development of collaborative economy: peer-to-per (by internet, geolocation, Apps), new packages for better validity.
Step 4. Expected effects on other parts of the economy	This program looks for ambitious entrepreneurs from all over the world with <b>disruptive innovation</b> that need guidance and conditions for trials / demos, from two main tracks: <ul style="list-style-type: none"> <li>• New business models for traditional business</li> <li>• Technology ventures (Start-ups)</li> </ul>



Step 5: The impact environment & society	They shall aim to fulfill at least one of the following goals: <ul style="list-style-type: none"><li>• CO2 mitigation</li><li>• Water &amp; Energy</li><li>• Circular economy</li><li>• Logistics &amp; distribution channels</li><li>• Biotech &amp; Biodynamics</li></ul> <p><i>The Municipality Mayor enhanced that "the countryside" is a territory full of opportunities, not just for the production of high quality food, circular economy, technology innovation.</i></p>
Step 6. Are alternatives available?	Idanha-a-Nova municipality also focus <i>to the tourism, entertainment, gastronomy, leisure, creative industries as another alternatives for the local development.</i>
Step 7: Policy options	As the policy make is the Municipality which is one of the key stakeholders in the “pioneer i-Danha <i>food lab</i> accelerator program”, all the policy initiative support the realization of the sustainable agriculture for the main beneficiaries in the program.
Step 8. Overall conclusions (optional)	i-Danha Food Lab annual event not only marked the end of its Accelerator, but also focuses on getting the community to think and debate <b>about future advances in the food production circular economy system</b> designed by BGI back in 2016, and that has been suffering improvements and developments every year. <b>This aims at minimizing waste and CO2 emissions while facing a major problem:</b> the increase of the population and the necessity to feed it with high quality and healthy food. At the same time, <b>many initiatives are taking place to educate the population and make it aware of the importance of food security and nutrition.</b>



### T3.2.2. – 3.3.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<b>T3.2.2. – 3.3.2. RLL Case Study on Competitiveness of SMAEs &amp; rural value chains SmartRural Living Lab (Portugal)</b>
RLL Case 1. Step 1: Defining the baseline	The Municipality of Penela is the leader of the Smart Rural Living Lab consortium and since 2007, it has worked on a strategy of innovation, competitiveness and entrepreneurship through its Master Plan of Innovation, Competitiveness and Entrepreneurship. Since then, a large number of stakeholders have been associated with their vision and the Smart Rural Living Lab (SRL) idea came out from this program implementation and shares a new vision for rural areas, taking and transforming characteristics traditionally seen as problems into opportunities and differentiation factors.
Step 2: Defining the new business case	Smart Rural Living Lab (SRL) is an incubator of innovative companies and enterprises in rural areas, supported and sponsored by the Pedro Nunes Institute (IPN) of the University of Coimbra which allows finding new approaches, innovative solutions and creating competitive advantages by developing a model that results in cooperation and innovation between education, the business community and the administration. The SRL promotes innovation and the development of research into new technologies, methodologies and applications enabling the emergence of new services / systems / products through citizen participation and testing. SRL produces knowledge around a set of activities previously identified at local/regional level with different agents and capable of foster entrepreneurship, economy, quality of life and citizen commitment with their community. <b>The Smart Rural, Smart HIESE - Rural Based Entrepreneurship Support Structuring Program</b> was established as a structuring project entrepreneurship and rural innovation, leveraging the HIESE (Habitat for Business Innovation in Strategic Sectors) as preferential space for the creation of innovative ideas and business initiatives in rural areas, for the generation of opportunities and the diffusion of knowledge in this area.
Step 3: Changes in the key sector	SRL establishes itself as a centre of innovation, good practice and development of rural sustainability, where agro-food and forestry sectors are the centre of the economic model. The common knowledge-base is generated around a model of sustainability within six main sectors: agro-industries, forest, clean energies, ICT for social services, environmental services, tourism products and services.
Step 4. Expected effects on other parts of the economy	Rural Based Entrepreneurship Support Structuring Program within the SRL provides a privileged space for incubation and acceleration of rural-based companies, by 1) generating opportunities and outreaching applied technological knowledge, and 2) attracting and training new entrepreneurs with innovative solutions. Establishment of new partnerships and cross-value chains (networking & internationalization) creates new business opportunities for SMEs and entrepreneurs.



<p>Step 5: The impact environment &amp; society</p>	<p>The SRLL aims to contribute to Penela's economic and social development by supporting four strategic areas:</p> <ul style="list-style-type: none"> <li>• Natural resources (e.g. agriculture, forest, forest fire prevention, grazing);</li> <li>• Social development and well-being (e.g. healthcare and nursing homes);</li> <li>• Tourism and identity (e.g. heritage preservation, virtual hunting, etc.);</li> <li>• Citizenship and entrepreneurship (e.g. internet access and public participation)</li> </ul> <p>Through actions aimed at transferring knowledge to entrepreneurs and companies in the rural world, SRLL organizes events such as creativity and mentoring workshops, business ideas contests, networking and brokerage sessions that foster distributional impacts among different interest groups.</p> <p>In addition, SRLL implements Rural Based Entrepreneurship Supporting Structuring Program created under SMART RURAL, SMART HIESE Project which also aims to disseminate environmental friendly practices e.g. clean energy and environmental services.</p>
<p>Step 6. Are alternatives available?</p>	<p>HIESE is the third business space provided by the Municipality of Penela - adding to Mini-Habitat and smARTES (which includes a FabLab).</p> <p><b>The Fab Lab</b> uses the type CAM solutions (Computer Aided Manufacturing) software where open source and the latest machinery enable rapid prototyping. The facilities consist of several types of machines, from laser cutting to circuit fabrication, but also by knowledge management tools that enable global and efficient sharing of information between laboratories.</p> <p><b>The Mini Habitat</b> aims to provide a first impulse, in the genesis of micro and small companies, thus providing them with the insertion in a business environment, as well as the necessary conditions for its success in the initial phase.</p> <p>With resources and close partnerships with the IPN - Instituto Pedro Nunes and other entities of the scientific and technological system, it contributes to the consolidation of the qualified entrepreneurship ecosystem of the Penela.</p>
<p>Step 7: Policy options</p>	<p>The most decisive political aspect of this LL is the sponsorship by IPN - Instituto Pedro Nunes and the support given by the Municipality of Penela. The Municipality is primarily focused on improving the local economic base and develop the natural resources, promoting citizenship and entrepreneurship, increasing welfare and social development, tourism promotion and territory identity preservation through its Master Plan of Innovation, Competitiveness and Entrepreneurship. Penela's development strategy in the area of entrepreneurship and innovation, attracting new companies and qualified young people around sectors such as agriculture, forestry, health, tourism and heritage.</p>



### T3.2.2. – 4.1.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2. – 4.1.2. RLL Case Study on Openness to new markets and technologies Laura Living Lab (France)</i>
RLL Case 1. Step 1: Defining the baseline	<p>1+2/We have chosen the Laura’s business case because we share a lot’s of uncommon Perspectives like : Initiative green solution. The openness of new markets using technologies tools. The resource depletion is a problem nowadays and it will be much serious in the near future because a lots of are Non-renewable, in addition the problem of emissions is making it worse</p> <p>3/ The technology applied in agriculture that will save the environment like electric cars and biofuels play a special role is one great example to develop the improved crops, boosted in recent decades by sufficient scientific evidence to support its usefulness and safety, shows how biotechnology can produce crops which are resistant to climate change</p> <p>4/ without specific policy measures to stimulate the circular economy so many investment opportunities : *Such us giving up on labor that can save so much financial resources which can make fortunes *To use more cheap tools and technologies which can save much more money</p>
Step 2: Defining the new business case	<p>1/Laura’s business case is a living lab that LAURA was created around the experimental farm of “White House “in Normandy supported by the Chamber of agriculture of Normandy. Which focus on the robotic project farmbot Its methodology driven with TES and their department The approaches are used by Laura’s can bring together the farmers through a direct communication</p> <p>2/the circular economy aims to reuse elements that are traditionally considered waste. The goal of using technologies which can produce goods and services while reducing raw materials, water and energy consumption and waste.</p> <p>3/Example → electric cars and biofuels play a special role</p> <p>4/the expected changes in the business model in tree aspects: */the education and the technology awareness level of the labours might be more developed ( labours of the third world might need training courses */energy efficiency in seeking alternatives to conventional vehicles, in order to reduce consumption of oil and fossil fuels, renewable energies appearing on the horizon as a key pillar of development. */ reducing raw materials, water and energy consumption and waste Materials that are subject to all these circumstances changes cannot lose their value to the users</p>



	<p>5/The enabling factors which are playing a major role in this business model:          -The fast technology development          -the development of the researches for new energy alternatives.          there barriers that influence the business model negatively such as the high costs of the technology equipments          The potential of this business case might be :          Mainstreaming the idea and changing the old agricultural system          conditions under which these potentials may be fulfilled          if the farmers and the agriculture sector accept the Radical technological change          The first step LAURA 2015/2018          The expected future developments are: future improvements in technology which can build          A business that respect the environment(less Intoxicating air water..          the expected situation when the transition is completed:          Laura’s business case the successful circular economy example</p>
Step 3: Changes in the key sector	Quantitative information (not mentioned)
Step 4. Expected effects on other parts of the economy	<p>a successful sector should encourage and make other sectors think of this change and have initiative to do likewise          This change should make the labor life routine much easier than before due the help of technological tools and equipments. Second, the circular alternative replaces other processes such as mining. A decreased demand of primary resources will influence international trade</p>
Step 5: The impact environment & society	<p>How does the new business case have an influence on environment:          Among the technologies that will save the environment, electric cars and bio fuels play a special role. The term “green cars” is not only restricted to the electric type, but also includes cars and machines that consume less hybrid vehicles, and many others.          On resources and on emissions:          the new alternatives resources which can substitute the essential classic resources and prevent its depletion and its waste that can be recycled without being a threat on environment          on productivity:          Production speed and its quality (to minimise the production defects opens up international markets )          On investment:          More opportunities for new investments all over the country          on employment:          The challenge of hiring the employment in this field that demands certain level of technology awareness and education</p>



	level This might create differences in staff types and inequality The wages level and the Upgrade
Step 6. Are alternatives available?	Which alternatives are developed which may become competitive with the business case described in the case study? And are these alternatives expected to become more profitable in the future? Or more sustainable?
Step 7: Policy options	The enabling factors could be supported by policy makers, such as research and innovation policies: Nowadays so many policy makers' stockholders business makers are supporting this kind of green solutions researches for more efficient resources and safe tools techniques for their employees and for saving more energy and financial losses. The barriers could be decreased by policy makers, e.g. legislation: Reducing taxes for green solutions entrepreneurs provide them the financial support and any legal support they need to start their investment.



### T3.2.2. – 4.2.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2. – 4.2.2. RLL Case Study on Openness to new markets and technologies DIGITAL VILLAGES (Germany)</i>
RLL Case 1. Step 1: Defining the baseline	<p>Interactive online local platform to communicate, shop online for products and services, obtain/provide local delivery of products on a voluntary basis between neighbours.</p> <p>The project has developed a platform based on the needs and inputs of citizens living in rural villages. Competences have been provided by Fraunhofer Institute IESE.</p> <p>Funding has been provided by IESE and the Regional Government of Rhineland-Palatinate (4+ mil €)</p> <p>3 Local Governments have volunteered as pilot beneficiaries and co-creators of the services</p> <p>Presently, the business model foresees the opportunity for other Local Governments to take part in the project against a fee to cover technical costs.</p>
Step 2: Defining the new business case	<p>The baseline model is already quite sustainable, including:</p> <ul style="list-style-type: none"> <li>• Easy communication at local level</li> <li>• Business opportunities for local activities</li> <li>• Online shopping from local vendors (less coming and going to/from local shops)</li> <li>• Voluntary-based delivery service (less pollution)</li> </ul> <p>The next step necessary is to institutionalise the action and take it from project to steady activity, making it replicable and, potentially, scalable.</p> <p>Are we necessarily talking about circular economy (a circular alternative business case?), or we are talking about how to make the business model more sustainable, scalable and transferable to other rural areas? (ie. online advertising, fees and initial investments from local authorities, etc.)</p> <p>In this specific case, circularity is less material than in traditional circular approaches, in fact each single citizen puts in circle resources / time / space that are useful to him/her and that can be used/re-used by others.</p>



<p>Step 3: Changes in the key sector</p>	<p>At this stage, the Digital Village action is very much dependent on the public investments of the local governments and on the private investment of Fraunhofer Institute as to the technology development.          We can expect the technology to become available soon (at a fee paid by the local governments) and we can expect the local business model to include advertising opportunities and fees for commercial activities.          As to the governance of the model, so far it has been top-down with engagement of users in the development of the services.          We can expect the model to evolve and foresee the creation of an association / legal person bringing citizens and commercial activities together and actively cooperate with the Local Government in the management of the living lab.</p>
<p>Step 4. Expected effects on other parts of the economy</p>	<p>In general, local economy benefits from the platform.          Local shops are preferred to global on line shops for ethical reasons but also because delivery costs are eliminated and become an occasion for socialization.          Therefore we can expect an increase in local jobs on one side, and a reduction of pollution on the other.          We can also expect people with reduced mobility to socialize more and, possibly, to feel less lonely and have reduced health issues.</p>
<p>Step 5: The impact environment &amp; society</p>	<p>Reduced individual car use, therefore reducing emissions          Increased cooperation among citizens          Support to people with limited mobility          Reduced feeling of loneliness</p>
<p>Step 6. Are alternatives available?</p>	<p>Public transport is the present solution and does not seem to be sustainable in the medium-long term          Online shopping is the present solution, but delivery in rural areas might become more and more expensive and, globally, not sustainable.          Social services to the elderly and to people with limited mobility are already scarce in rural areas and it does not look like they will evolve in the medium-long term.</p>
<p>Step 7: Policy options</p>	<p>As initial public investment is necessary to launch a structured approach such as Digital Villages, it would be very useful to have a regional/national policy framework promoting local cooperation / providing a model and incentivating Local Governments to initiate such processes, possibly with a budget.</p>



### T3.2.2. – 4.3.2. LIVERUR Rural Living Lab Case study

<i>Step-by-step approach structuring the case studies on transition to the circular economy</i>	<i>T3.2.2.- 4.4.2. RLL Case Study on Openness to new markets and technologies PA4ALL (Serbia)</i>
RLL Case 1. Step 1: Defining the baseline	The case study is a unique example of LL focusing on precision agriculture in Europe. The final goal of the PA4ALL is to develop a more competitive economy for the region Vojvodina offering possibilities of collaboration between the main stakeholders, and to test various ICT solutions for agriculture in real conditions. Without the LL the local ICT industry, which employs around 10.000 people in Novi Sad only, is mostly acting as a subcontractor of European companies and thus operating at low margins and not capturing long-term added value; while the regional agriculture has a huge potential, but still employs mostly traditional methods.
Step 2: Defining the new business case	<p>The LL combines the work of a research centre specialized in the agriculture innovation, of SMEs developing ICT solutions and of the end-users, namely the farmers, all this with the support of the regional authority.</p> <p>This collaboration generates benefit for all actors involved in the LL:</p> <p>The BioSense Institute, inside the University of Novi Sad, promoter of the LL) receives updated insights on agriculture and on directions to follow for future research both from farmers and SMEs;</p> <p>The farmers and SMEs are provided with spaces to meet with each other (BioSense hosts “speed date” sessions between farmers and SMEs) and co-create new ICT solutions;</p> <p>the farmers can test new technologies;</p> <p>The Regional authorities receive reports and feedback on the agricultural sector that can be turned in policy in the agrifood sector.</p> <p>The final aim of the LL is improving the regional economy by supporting the local ICT industry in having a leading role in Europe and in making the regional agriculture more efficient and competitive.</p> <p>This LL can be considered more as a service provider (instead of product provider), it created conditions and space for interaction the stakeholders. Any earning is external to the LL: profits made by SMEs selling their products to farmers are not intended as part of the LL, but this happens through contracts between SMEs/Farmers that are not part of the LL.</p> <p><b>General principles of the circular economy:</b></p> <p>Fostering innovation and ICT solutions that can lead to more efficient and sustainable agriculture practice. Beside maximise profitability, it can also tackle health and safety issues as well as reduce environmental impacts.</p> <p><b>Expected changes in the business model:</b></p>



	<p>For ICT companies → they field test solutions and develop applications that are closer to the needs of the end-users and therefore they insights on what the market really needs.  For farmers → apply ICT solutions to their practice.  The LL also bridge the gap between scientist and lab-based research and day-to-day farming practice.</p> <p><b>Enabling factors:</b>  Existing relationships between regional actors.  Strong research capacity of the BioSense and participation in Horizon 2020 programme and in other research co-funded by industry or EU.</p> <p><b>Barriers:</b>  The LL is not a legal entity and it relies on EU funds only.</p> <p><b>Expected future developments:</b>  The LL plans to expand the network as much as possible and to reply some successful practice they have already implemented such as the 1<sup>st</sup> digital farm opened in March 2018, which is a sort of ICT “showroom” for farmers where they can test new technologies. No foreseen plans to create a separate entity.  Technology improvement: the potential of development and application of new ICT solutions for the enterprises and farmers is wide (and supported both by the research institute and ICT companies).</p> <p><i>Transition</i> →  Develop ICT applications and solutions that favour the organization of processes in cycles, that can help keep the added value in products for their entire lifecycle and minimise waste  Encourage change in consumer behaviours e.g. to buy local products  Include in the knowledge share and in the circular approach other actors such as agri-business support companies of the region (providers of fertilizers, pesticides, consulting services), the logistics sector and the markets  Develop policies to encourage circular agriculture in the region and incentives for farmers to adopt ICT solutions for sustainable agricultural practice.</p>
Step 3: Changes in the key sector	<p>The LL encourages the local ICT sector to move towards a paradigm-shift, namely from a strategy based on outsourcing that simply exploits the relatively low wage costs of developers, to one that is based upon the competitive strengths of the entire regional eco-system and the exploitation of own solutions, with significantly higher added value.  It also supports the development of a win-win synergy with agri-business support companies of the region (providers of fertilizers, pesticides, consulting services), that currently consist the most agile and motivated link in the value chain, since they have both direct access to farmers and clear motives to introduce advanced technologies as complimentary services to their existing portfolio.  The farmers adopt solutions for more effective management of the soil, for fertilisation, use of pesticides, monitoring the growth of crops and planning of the agricultural activities. Examples of specific solutions adopted couldn't be found through</p>



	desk research (Agrosens app was mentioned during the interview with the stakeholder <a href="https://agrosens.rs/#/app-h/welcome">https://agrosens.rs/#/app-h/welcome</a> ). <i>What is the expected situation after the transition has been completed, both for the operational processes and economically?</i> Increased the number of actors participating in the collaborative platform and circular process (providers, distribution, markets, consumers)
Step 4. Expected effects on other parts of the economy	Increased employment opportunities Revitalised regional economy
Step 5: The impact environment & society	Increased cooperation among the stakeholders of the region Availability of safe and adequate food for the population Reduced environmental footprint of the agrifood sector