



## PROJECT H2020

### “Living Lab research concept in rural Areas – LIVERUR”

### DELIVERABLE 4.3: The RAIN Concept - Generation of the concept of Regional Circular Living Lab Approach in rural areas

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## EXECUTIVE SUMMARY

### I/ INTRODUCTION

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WP 4 aims at the creation of 1. a new viable business model concept in a rural context, merging the Living Lab approach and Circular Economy theory and 2. at developing practical guidelines in pilot regions to implement the new business model concept “RAIN”.

RAIN (Regional cIrcular liviNg lab business model concept) is a new business model concept, designed specifically for the rural context and taking into account regional characteristics. RAIN is comprehensive as it combines theories on Living Labs, Circular Economy and other concepts (also see II.1). To achieve the mentioned aims step by step task 4.3 is about the “Generation of a new concept: the Regional Circular Living Lab Approach in rural areas”.

### II/ OBJECTIVE AND METHODOLOGY

The objective of task 4.3 is to generate a Regional Circular Living Lab Concept for rural areas. This task has to be fulfilled by creating and conceptualizing the new RAIN Approach in all the necessary terms of a business model like definition, applicability, formalization, involved parties, allocation of responsibilities, chronological sequences etc.

The first step of work was an intense literature review on traditional and innovative business models, -concepts and plans. The analyses included the components of a business plan by Pöchtrager and Wagner (2018), the Business Model Canvas by Osterwalder and Pigneur (2010) as well as attempts towards a Sustainable Business Model Canvas, the RESTART Sustainable Business Model Innovation by Jørgensen and Pedersen (2018), Sustainable Business Model Archetypes by Bocken et al. (2014), general essential items regarding regional/rural context and Living Labs as well as the Deloitte (2015) and FAO (Neven 2014) global food value chain models. Complementary the findings of WP 2, WP 3, WP 4 and WP 6 were analysed and integrated.

In a second step, the new RAIN Concept was formulated based on the collected findings by using a simple System Dynamics like approach for structuration. The first draft was circulated to the LIVERUR project partners as well as presented at the Grand Agreement (GA). The received feedbacks and amendments were integrated in the second draft. Then two test-run-workshops on the applicability of the RAIN Concept were performed, which led to further amendments and simplification and the formulation of the final version of the RAIN Concept. It comprises three layers with RAIN Core Elements, RAIN Principles and RAIN Real Life Setting.

To facilitate the working process within RAIN it was divided into five tasks. Within these tasks the utilization of the worksheets RAIN Principles and RAIN Real Life Setting is meant to help the users to integrate the respective aspects in the business model.

### III/ RESULTS, FINDINGS AND CONCLUSIONS

RAIN (RegionAl cIrcular liviNg lab business model concept) consists of three layers including RAIN Core Elements, RAIN Principles and RAIN Real Life Setting. The RAIN Core Elements, presented in the shape of a puzzle, summarise all the different aspects a business model has to take care of. The second layer contains the RAIN Principles, which include the necessary components regarding the ideas of the LIVERUR project, including the Living Lab approach, Circular Economy and sustainability. The third layer represents the RAIN Real Life Setting, which describes the exogenous environment of a business project. The RAIN Real Life Setting is tailored to the regional specifics and will be elaborated in detail within LIVERUR Del. 4.4.

The following Figure 1 displays the RAIN Concept with its three layers:

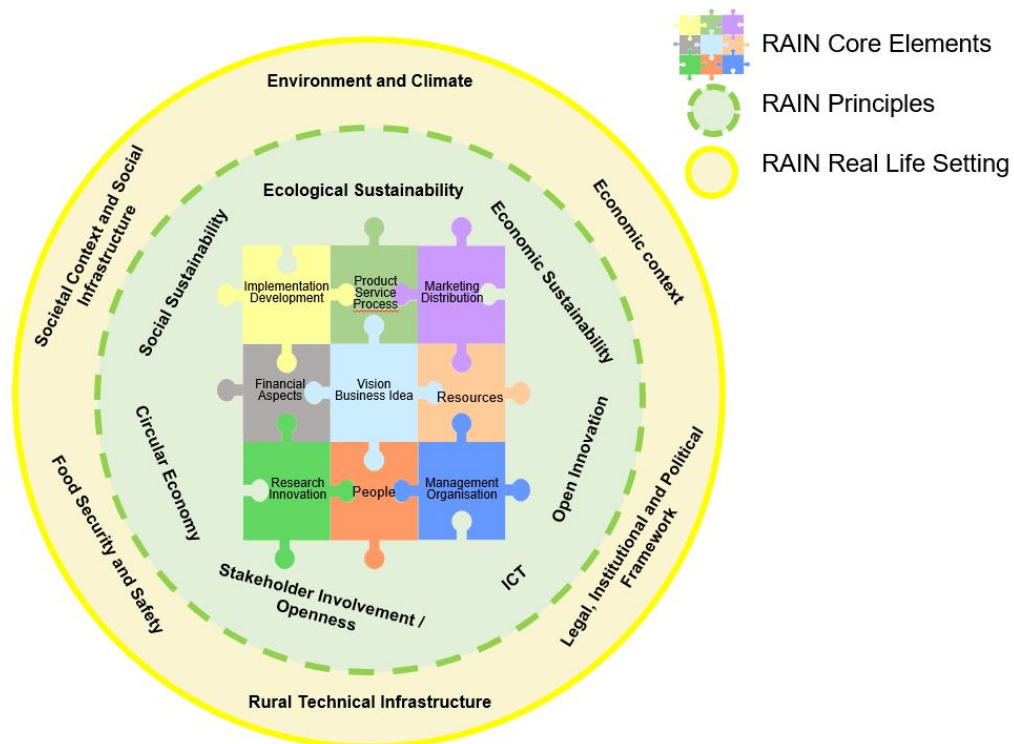


Figure 1: System of the RAIN Concept with three layers and their elements (BAB, own elaboration based on literature findings and feedbacks from LIVERUR project partners)



The elements of the RAIN Concept layers are presented in detail in Table 1.

Table 1: Elements of the RAIN Concept layers (own table)

<b>Elements of the RAIN Concept layers</b>		
<b>RAIN Core Elements</b>	<b>RAIN Principles</b>	<b>RAIN Real Life Setting</b>
Vision / Business Idea	Ecologic Sustainability	Environment and Climate
People (Partners, Customers, Stakeholders)	Economic Sustainability	Economic Context
Resources	Social Sustainability	Societal Context and Social Infrastructure
Research / Innovation	Circular Economy	Policy, Legal and Institutional Framework
Implementation / Development	Open Innovation	Rural Technical Infrastructure
Management / Organisation	Stakeholder Involvement / Openness	Food Security and Safety
Financial aspects	ICT enabled environment	
Product / Service / Process		
Marketing / Distribution		

The application of RAIN follows five tasks, covering:

- Task 1: the selection of a RAIN Core Element and consideration of RAIN Real Life Setting (worksheet RAIN Real Life Setting, LIVERUR Del. 4.4);
- Task 2: the selection of an appropriate method (Circular Living Lab Toolbox LIVERUR Del. 5.2; and LIVERUR Del. 4.3 Annex 4);
- Task 3: the processing of the working steps: Clarification of Status Quo; Setting of goals – What? When? How? Integration of RAIN Principles; Drafting of Measures; Specification of Responsibilities and Timelines; Evaluation, Rethinking and Restarting);
- Task 4: the summary of the findings on one RAIN Core Element (chapter of Business Plan);
- and Task 5: repeating the application with the next RAIN Core Element till all targeted RAIN Core Elements are processed.

As a result, the summaries of all edited RAIN Core Elements together form the Business Plan.

The RAIN Concept supports an integrative, holistic and inclusive way of thinking in the course of developing a project or an activity. It should assist in developing a business that integrates all concepts promoted by LIVERUR: business models, rural Circular Economy and Living Lab approach.



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## INTRODUCTION

WP 4 aims at the creation of a new viable business model in rural context, merging the Living Lab approach and Circular Economy theory (Regional circular living lab business model concept – RAIN). A further aim is the development of practical guidelines for the piloting areas with instructions to implement the new business concept in the regions.

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To achieve this, the work in WP 4 is arranged in four tasks:

- Task 4.1: Identification of rural business models connected to Living Lab concept in piloting areas (BAB)
- Task 4.2: Development of a multi modal approach to compare Living Lab –Circular Economy approaches (TRA)
- Task 4.3: Generation of the new Regional Circular Living Lab Concept, RAIN (BAB)
- Task 4.4: Territorial Guidelines for the implementation of RAIN (BAB)

## OBJECTIVES

The objective of task 4.3 is to create and conceptualize the new RAIN Approach in all the necessary terms of a business model like definition, applicability, formalization, involved parties, allocation of responsibilities, chronological sequences etc. Based on the findings of literature and the results of WP 2, 3 and 4 the new RAIN Concept is formulated. This is followed by detailed instructions regarding the implementation of the concept.

## STRUCTURE OF THE DELIVERABLE

In chapter I of this report the used methods are explained as well as a list of definitions of the most important used terms is given. The requirements and preconditions for the new business concept RAIN according to the Grant Agreement are explained in chapter II.

The following chapters III to IV give an overview of literature on the topic of business models, business model innovation and Living Labs (chapter III) and summarise the relevant results of WP 2, WP 3 and WP 4 to be included into the RAIN Concept (chapter IV). In chapter V the report drafts the RAIN Concept developed on the basis of the previous findings and in close collaboration with the project partners. While chapters I to IV are formulated theoretically and try to give the scientific background of the RAIN Concept, chapter V is intentionally kept very practical, to facilitate the application of RAIN.



## I/ Methods and Glossary

The RAIN Concept is built on deep knowledge about business models and Living Labs especially in rural areas in theory and practice. Therefore, chapters III to IV concentrate on literature research and analyse and summarise the compiled results of the previous tasks of the project. Chapter V drafts the RAIN Concept in two steps. At first the structure and elements of the concept were defined, and presented to all LIVERUR partners for discussion and comments (before the partner meeting in June 2019, Terceira/PT). Only then it went to a more detailed formulation of the RAIN Concept for each of the elements, which again were matter of discussion of the project consortium. Then a final version of the RAIN Concept was developed. Important terms for the purpose of this report are defined in Table 2.

Table 2: Definition of important terms for LIVERUR Del. 4.3 (own compilation)

Term	Definition	Source
3-dimensional matrix	Matrix that will guide the implementation of the Regional Circular Living Lab business Concept (RAIN) in rural areas, which combines the four pillars (equal to all piloting's) with the three innovation boxes and the vertical targets.	European Commission 2018 (Grant Agreement LIVERUR)
4 Pillars	LIVERUR encompasses four pillars, or broad directions, that the project will undertake during the implementation, besides the crucial ideas of Living Lab business model and regional Circular Economy approach. The four main pillars are the following: 1) Environment and Resilience, 2) Resource efficacy – efficiency and management, 3) Competitiveness of SMAEs & rural value chains, 4) New markets and technologies.	European Commission 2018 (Grant Agreement LIVERUR)
Business concept	A business concept is the underline baseline for the creation of a business model.	European Commission 2018 (Grant Agreement LIVERUR)
Business model	A business model describes the rationale of how an organisation creates, delivers and captures values, in economic, social, cultural and other contexts.	Geissdoerfer, Martin; Savaget, Paulo; Evans, Steve (2017)
Circular Economy	A regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling. This is contrast to a linear economy which is a 'take, make, dispose' model of production.	European Commission 2018 (Grant Agreement LIVERUR)
Innovation box	These are thematic areas of innovation in which the piloting areas are classified: 1) water 2) food 3) Future & Technology	European Commission 2018 (Grant Agreement LIVERUR)
Living Lab	No unique definition is present for this terminology. LIVERUR will adopt the most recent and flexible. Living labs are user-centred, open-innovation ICT en-	European Commission 2018 (Grant Agreement LIVERUR)



Term	Definition	Source
	abled ecosystems often operating in a territorial context integrating concurrent research and innovation process within a quadruple X (Government, Industry/Agriculture, People, Academia) public-private-people partnership.	
Decision support system	Computerized planning and information system that supports decision-making at the management level by summarizing and appropriately presenting decision-relevant information (e.g., in spreadsheets or graphs).	Gabler Wirtschaftslexikon 2019
Open Innovation	Open innovation is about how an organization utilizes knowledge flows that cross organizational boundaries to improve the success of the organization's innovation efforts. These flows may be inbound from and/or outbound to its external partners which may be organizations, individuals or networks—and are motivated by monetary or other incentives	M. Augier, D.J. Teece (eds.) 2019. The Palgrave Encyclopedia of Strategic Management.
Participatory design	Participatory Design (PD) is a design methodology in which the future users of a design participate as co-designers in the design process. It is a value-centered design approach because of its commitment to the democratic and collective shaping of a better future.	Van der Velden, M. & Mörtberg, Ch. (2014)
RAIN Concept	Acronym for the LIVERUR innovative business concept: RegionAl cRcular liviNg lab business Concept	European Commission 2018 (Grant Agreement LIVERUR)
Quadruple helix approach	Both the Triple Helix (TH) concept and the Quadruple Helix (QH) approach are grounded on the idea that innovation is the outcome of an interactive process involving different spheres of actors, each contributing according to its 'institutional' function in society. Traditional protagonists of the TH are University (UNI), Industry (IND), and Government (GOV). Civil society (CIV) is the additional sphere included in the QH. Common to all of the proposed versions is the inclusion of a fourth sphere/helix to the TH model. Additionally, in the deriving frameworks, sources of innovation are no longer restricted to interactions between university, industry and government. Rather, they become closer to the 'spaces' approach as well as more heterogeneous and socially distributed.	European Commission 2018 (Grant Agreement LIVERUR)
Roadmap	A detailed plan to guide progress toward a goal; a detailed explanation.	Merriam Webster Dictionary 2019
Rural Living Lab	Living Lab concept applied in rural areas and businesses.	European Commission 2018 (Grant Agreement LIVERUR)
SMAEs	Small-medium Agricultural / Rural Enterprises	European Commission 2018 (Grant Agreement LIVERUR)



<b>Term</b>	<b>Definition</b>	<b>Source</b>
Stakeholders in rural areas	Subjects (persons & legal subjects) who are able to make relevant decision related to the development/governance process in rural areas.	European Commission 2018 (Grant Agreement LIVERUR)
Vertical targets	The vertical targets are broad vision targets that all the piloting areas will have to chase. They are: job creation, social cohesion & innovation and waste reduction.	European Commission 2018 (Grant Agreement LIVERUR)



## II/ Requirements and preconditions of the Grant Agreement

The project proposal and in consequence the Grant Agreement (European Commission 2018) set already the frame and preconditions for the new business concept RAIN.

There it is stated that *“solutions to the challenge faced by rural regions are being developed at the local level in the form of Living Lab schemes. [...] The complexity of the LIVERUR project is to decouple growth from resource use, support the pathway from linear to Circular Economy, identify the collaborative consumption, increase the social networks and rethink finance in the overall value chain, creating for the SMAEs entrepreneurs a new open mind to innovation.”* (European Commission 2018, p. 149). This sentence includes already the most important keywords for the RAIN Concept.

The RAIN Concept is a three-dimensional matrix where the first dimension consists of four pillars:

- Environment and resilience
- Resource efficacy
- Rural employment and competitiveness
- New markets and technologies

The second dimension comprises the innovation box with three categories:

- Water
- Food
- Future and technology

The third dimension is about vertical targets as there are in the pilot regions:

- Job creation
- Social cohesion and innovation
- Waste water reduction

In addition, the quadruple helix approach (enterprises, research, government and civil society) and life cycle analysis / life cycle costing are important schemes to follow in the RAIN Concept development.



### **III/ Literature review on traditional and innovative business models, -concepts and -plans**

A lot of literature exists about business concepts, -models and -plans. The following chapters analyse the most recent and for the LIVERUR project most relevant literature and extract the essential elements which are of importance for the development of the RAIN Concept.

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#### **III.1 From the idea to the business plan (Pöchtrager and Wagner 2018)**

A newly published book by Pöchtrager and Wagner (2018) focuses on the successful implementation of business ideas in the agricultural and food industry depicting examples from Austria. According to the authors (Pöchtrager and Wagner 2018, p. XXV) a business plan examines a business idea regarding feasibility, economic viability and customer benefits and consists of two sections: a text section and a financial section. The text section offers the description of the business idea and the product or service, analyses the market and its competitors, describes opportunities and risks, introduces the planned marketing mix and the corporate form and offers a detailed implementation plan. These considerations serve as the basis for the numbers and arguments in the financial section of the business plan, which is the heart of the business plan. It includes investment planning, revenue planning, a profit and loss calculation and liquidity planning for the first five years of the business activities. (Pöchtrager and Wagner 2018, p. XXV)

As stated in Pöchtrager and Wagner (2018, p. XXV) a business plan consists of nine chapters, summarised in the following paragraphs.

##### **III.1.1 Management summary**

The management summary should be at maximum two pages long. It should contain all essential points of the business plan and should be easy to read. It is written at the end and ideally checked by an external expert.

##### **III.1.2 Business idea and business model**

Pöchtrager and Wagner (2018) cite Sinek (2011) who became known for asking “Why? – Why do we do, what we do?” as a first question regarding a business idea as consumers are mainly inspired by the engagement for a certain cause. It’s also the customers’ benefits that has to be in the focus of the business plan. Regarding the innovation process, the authors define different stages: initiation of the process, win ideas, rate and select ideas, elaborate rough concept, develop a business plan and finally realize the idea. For the stage of winning ideas they propose different creativity techniques like Brainstorming, Brainwriting, Mindmapping and the SCAMPER-method.

There are three essential points regarding a business model (Wirtz 2013 in Pöchtrager and Wagner, 2018, p. 12):

- What are the benefits of a company for the customers and its key partners? This is about the value proposition.
- How does the company render the benefit? This encompasses the different stages of value added, its involved parties and their role in value creation.
- How does the company make money? This is about the revenue model.

The authors propose the development of a business model by means of a Business Model Canvas according to Osterwalder and Pigneur (2010), as described in chapter III.2.





### III.1.3 Market and competition

In order to be able to define the business sector and target market a market analysis is needed. It includes characteristics such as market and sector development, trends, growth rates, market size, market volume, competitive situation, price level and additional factors (e.g. general economic development, changes in legislation, demographic trends, changes in the ecological environment etc.).

For analysing the business sector, the authors propose the model of Porter (1985), which analyses the five most important competitive forces of a sector: negotiation power of suppliers, negotiation power of customers, threat from new competitors, threat of replacement products and intensity of competition in the sector.

Central for understanding the business sector is the analysis of the competitive situation. Pöchtrager and Wagner (2018) recommend the following criteria from F. Malik for analysing the competitors, which Malik calls the “six key variables for a company's viability and health” (Stöger 2010 in Pöchtrager and Wagner 2018, p. 26): market position, innovation performance, productivity, appeal to good people, liquidity and profitability.

After choosing the (target) market, which comprises all potential customers, it has to be opened up systematically by the entrepreneur. For the beginning the authors recommend a restriction to a few market segments. To plan a business the potential future market success has to be estimated, this includes criteria like market potential, market volume, market growth, growth rates, market share and sales volume (Nagl 2014 in Pöchtrager and Wagner 2018, p. 28).

It is very important to be clear, who the potential customers are. A target group definition according to geographical, demographic, behavioural and lifestyle-oriented criteria can be helpful. While the target groups in itself have to be homogenous, they can vary between the different market segments (Lutz and Bussler 2010 in Pöchtrager and Wagner 2018, p. 31). The authors also describe the “persona concept” where a typical customer is shown as a real person (including name, age, hobbies, professional interests etc.) (Kreutzer et al. 2017 in Pöchtrager and Wagner, 2018, pp. 32-35).

All the collected information about the business sector, markets and environment can be structured by using a SWOT analyses (strengths, weaknesses, opportunities and threats).

### III.1.4 Product and service

It is important to define the quality of a product or service from the perspective of the customers, as they are only willing to pay when their needs are fulfilled. One speaks of a Unique-Selling-Proposition (USP) when a product or service has a higher benefit or other added value, more effective communication (packaging, design etc.) or better value for money than its competitors. At least one of these aspects should apply. Concerning the packaging the mandatory markings have to be taken under consideration and the look of the products has to consider the market segment (e.g. premium). In addition, the image of a product or service and additional services should be taken under consideration.

The business plan also has to depict the value chain from material purchasing to customer services. Questions about outsourcing and possible co-operations have to be asked and the necessity of market and product tests have to be kept in mind.



### III.1.5 Marketing and distribution

Marketing consists of the four sectors product, price, place (distribution) and promotion, abbreviated as 4-Ps according to McCarthy (1960) which all together are also known as the marketing mix. There is also a difference between marketing for consumer goods and services, in the latter case a fifth P for personal (human resources policy) has to be considered. (Pöchtrager and Wagner 2018, pp. 47-49)

**Product policy:** discussed in chapter II.2.4

**Price policy:** In pricing several factors have to be considered e.g. the quality of the product (a low price is often associated with low quality), image (trends and lifestyle play an important role in pricing), fair prices (value for money has to be carefully chosen). The self-costs of the product or service have to be a starting point, in addition the pricing strategy plays a crucial role (cost leadership, differentiation strategy or niche strategy). Another aspect is price differentiation, which means to charge different prices for different target groups for identical products or services. Wagner (2000) defines five forms of price differentiation: spatial, chronological, quantitatively, customer related and use related.

**Distribution policy** (sales form and distribution channel): Concerning the type of sales the distribution may happen through direct sales to the customers through own sales offices or the internet. The other possibility are indirect sales, where products get to the costumers via third parties, e.g. foreign retail stores and/or wholesalers. Especially in case of indirect sales, marketing logistics including time, reliability, texture flexibility of delivery play a crucial role.

**Communication policy:** Communication measures have to be chosen and shaped around the needs of the target group and coordinated among each other (Meffert et al. 2015 in Pöchtrager and Wagner 2018, p. 58). The most important communication actions are classic advertising (e.g. newspapers, radio, TV), direct marketing (e.g. phone calls, e-mails), sales promotions (promotions at the point of sale such as cost samples), public relations (e.g. press releases, conversations with journalists, newspaper and magazine articles), trade fairs and exhibitions. As communication actions are often associated with high costs, social media like Facebook, Twitter, Instagram or a company webpage are indispensable and relatively inexpensive ways of advertising.

### III.1.6 Business and management

In this part of the business plan the innovator first describes himself and his team, experiences and skills as well as important milestones of the curriculum vitae should be listed. Next important step is the organizational personnel planning whereby the personnel plan describes the current number of employees in the different business areas and its development. With rising numbers of employees, the organizational form of the enterprise plays an increasing role (e.g. integral, functional, Matrix or divisional organizational form).

In addition, the legal form of the enterprise has to be determined. The possible legal forms of private enterprises comprise individual company, partnerships (private corporation, general partnership, limited partnership, silent partnership), corporations (stock company, limited liability company), hybrid forms and open associations of individuals with separate legal personality (co-operative, idealistic association, foundation).

### III.1.7 Opportunities and risks

Ideally, this chapter should start with the potentials for success of the business idea. According to Tiffany and Peterson (2009) chances can derive e.g. from demographic changes, technical or



technological changes, new clienteles, new business models, new materials, new legal regulations etc. (Tiffany and Peterson 2009 in Pöchtrager and Wagner 2018, pp. 93-94)

Pöchtrager and Wagner (2018) cite a risk classification in four categories:

- market risks (occur through changes on the target market),
- productions risks (e.g. scarcity of resources, machine failure),
- financing risks (e.g. loans can no longer be served) and
- strategic risks (e.g. earlier or current wrong decisions, innovations substituting own technologies).

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The evaluation of the expected risks plays an important role. The risk-matrix is hereby an effective and easy to apply instrument (Titzrath und Scholtissek 2003 in Pöchtrager and Wagner 2018, pp. 95-96). In this matrix probability and impact of risks are rated from low to high. In the business plan it should also be considered how one is going to counteract the identified risks. In the SWOT analysis (see chapter III.2.3), the detected opportunities and threats/risks are juxtaposed with the strengths and weaknesses of the enterprise.

### III.1.8 Finance and profitability

There are different financial plans. The authors propose that all described plans should have a time horizon of five years, whereby they should be made on a monthly basis for the first business year.

**Investment planning:** Investments comprise tangible, financial and intangible assets, needed to produce products or services. Investment planning also contains the depreciation as an important aspect.

**Sales planning:** Based on the market estimates the potential revenues are being calculated. The sales plan is structured according to one or more of the following criteria: product, sales territory, customers and/or field service employee.

**Liquidity planning:** The liquidity plan informs about capital in and outflows. In contrary to profit and loss account for liquidity only cash and cash equivalents are considered (e.g. no depreciation).

**Profit and loss account:** It displays the profitability and earnings position of a company which either results in a profit or loss. The profit is the basis of assessment for income tax or corporation tax.

**Further plannings:** Balance sheets can represent the comparison between assets and capital, cash flow analysis is similar to liquidity planning but includes other factors (e.g. depreciation).

There can be internal financing coming from ongoing payments-in or external financing stemming from investors, banks or other institutions on the capital market. External financing is divided into debt financing provided only for a specific period of time (e.g. loans) and equity financing where ownership of the company is acquired (Thommen and Achleitner 2012 in Pöchtrager and Wagner 2018, p. 127). A new way of funding is crowd funding, which exists in several forms e.g. reward-based crowdfunding, equity-based crowdfunding, lending-based crowdfunding and donation-based crowdfunding. (Gründerküche 2017 in Pöchtrager and Wagner 2018, pp. 128-129) There is a close network of connections between the different forms of financial plans (Pöchtrager and Wagner 2018, pp. 129-130).

Legal issues are other important factors. The applicability of commercial law (which is e.g. the basis for the applicable wage collective agreement), business license, business premises permit,



spatial planning law, environmental laws, planning permissions has to be observed (Bruckner in Pöchtrager and Wagner 2018 pp. 130-149). Taxes and the relevant laws that have to be taken into account are (Bruckner in Pöchtrager and Wagner 2018 pp. 149-158):

- Income tax for natural persons
- Corporate tax for legal entities
- Value added tax
- Real estate transfer tax on the acquisition of real estate
- Wage-related levies (e.g. municipal tax)

The expenses for social insurance also have to be considered in the business plan as well as the type of compulsory insurance. By choosing the legal form the entrepreneur may influence the type of compulsory insurance and the amount of the insurance contributions. For example it is important whether the business falls into the category agriculture/forestry or trade or both. (Bruckner in Pöchtrager and Wagner 2018, pp. 165-176)

### **III.1.9 Implementation plan**

Finally the implementation plan describes the implementation of the business in the months and years ahead, ideally covering between one and three years. It should include (Pöchtrager and Wagner 2018, pp. 181-184):

- the definition of implementation targets,
- the division of the implementation work into work packages,
- the setting of milestones and the development of a timetable,
- the planning and monitoring of costs and
- the description of activities for the reduction of risks.

## III.2 Business Model Canvas – a tool for Business model generation and analysis

### III.2.1 Business Model Canvas by Osterwalder and Pigneur

The Business Model Canvas (BMC) has been developed by Osterwalder and Pigneur (2010) as an easy understandable, but not oversimplifying concept for describing, visualizing, analyzing and designing (new) business models. This hands-on tool proposes a shared language on what a business model constitutes and how to use it for developing new and innovative strategies. It is designed as an interactive tool, where, like on a large-size painter's canvas, a group of people can jointly sketch and discuss nine defined and interrelated business model elements or building blocks, which cover the four main areas of business: customers, offer, infrastructure and financial viability. What follows is an outline of the nine building blocks according to Osterwalder and Pigneur and the central questions, which should be answered when doing the BMC (see Figure 2).

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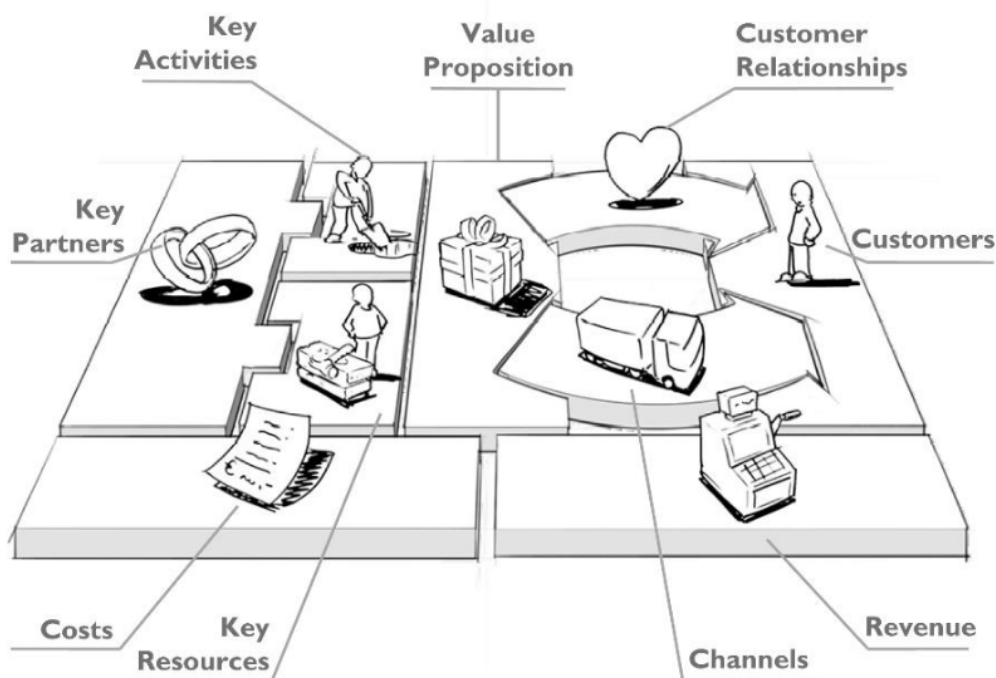


Figure 2: The Business Model Canvas Building Blocks (Osterwalder and Pigneur 2010)

#### Nine Elements of a Business Model Canvas according to Osterwalder and Pigneur (2010)

The **Customer Segments** building block addresses the different groups of people or organizations an enterprise or an operation aims to reach and serve. There might be separate customer groups, which may have specific needs and thus require distinct offers, distribution channels, different types of relationships, profitability and willingness to pay.

- For whom are we creating value?
- Who are our most important customers?



A **Value Proposition** is a bundle of products and services that meets the needs of a specific customer segment and therefore creates value to a target group. Value creation may (among others) be achieved by the newness of a value proposition, by its improved performance compared to existing products or services, customization to specific needs or a lower price.

- What value do we deliver to the customer?
- Which one of our customer's problems are we helping to solve?
- Which customer needs are we satisfying?
- What bundles of products and services are we offering to each Customer Segment?

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**Channels:** After having defined customer segments and value proposition, the next step is to specify which Channels should be used to deliver a value proposition to its customers. Channels entail communication, distribution and sales channels. Channels can be direct or indirect as well as owned and partner channels.

- Through which Channels do our Customer Segments want to be reached?
- How are we reaching them now?
- How are our Channels integrated?
- Which ones work best?
- Which ones are most cost-efficient?
- How are we integrating them with customer routines?

The **Customer Relationships** building block points at the types of relationships a company or an operation has with specific Customer Segments. Relationships may range from personal assistance based on human interaction, self-service to automated services. The right choice between these different types of relationships depends on the respective preferences different target groups may have.

- What type of relationship does each of our Customer Segments expect us to establish and maintain with them?
- Which ones have we established? How costly are they?
- How are they integrated with the rest of our business model?

The **Revenue Streams** block is about the kind of revenues a company or an operation is generating from each Customer Segment. There may be one or more Revenue Streams from each Customer Segment and they may have different pricing mechanism e.g. fixed list prices, bargaining or auctioning. They can be one-time payments by the customers or recurring revenues. Revenue Streams can be shaped as asset sales (selling ownership rights to a physical product), usage (offering a service) or subscription fees (continuous access to a service) or brokerage fees (intermediation Services).

- For what value are our customers really willing to pay?
- For what do they currently pay?
- How are they currently paying?
- How would they prefer to pay?
- How much does each Revenue Stream contribute to overall revenues?

**Key Resources** are the most important assets of a business model and depending on the type of business model type can be physical, financial, intellectual or human. They are needed to create and offer a Value Proposition, access markets, entertain relationships with Customer Segments



and earn revenues. A company may own or lease Key Resources or acquire them from key partners.

- What Key Resources do we require for our Value Propositions?
- What Key Resources do our Distribution Channels require?
- What Key Resources do our Customer Relationships require?
- What Key Resources do our Revenue Streams require?

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**Key Activities** are the most important actions for a company or operation to work successfully. Depending on the business model type and Key Resources, Key Activities can be related to production, problem solving or platform or network. In manufacturing companies, production activities may be the most important ones, for consultancy firms problem solving and Key Activities of software companies may center around developing and maintaining platforms.

- What Key Activities do we require for our Value Propositions?
- What Key Activities do our Distribution Channels require?
- What Key Activities do our Customer Relationships require?
- What Key Activities do our Revenue Streams require?

The **Key Partnerships** building block is about the network of partners, a business model relies on. Alliances between companies can be motivated by optimization and economy of scale, where companies aim at reducing costs by e.g. outsourcing to or sharing infrastructure with their partners. Other motives are the reductions of risk and uncertainty (e.g. among competing companies). There are different types of partnerships, such as strategic alliances between non-competitors and/or between competitors, joint ventures as well as buyer-supplier relationships.

- Who are our Key Partners?
- Who are our key suppliers?
- Which Key Resources are we acquiring from partners?
- Which Key Activities do partners perform?

Finally, the **Cost Structure** building block comprises all costs that arise from operating a business model. Costs depend on Key Resources, Key Activities and Key Partnerships and incur by creating and providing value, when maintaining Customer Relationships as well as by creating revenues. Broadly speaking, business models can be cost-driven (focussing on minimizing costs, e.g. no frills airlines) and value driven (focus on value creation, e.g. luxury hotels).

- What are the most important costs inherent in our business model?
- Which Key Resources are most expensive?
- Which Key Activities are most expensive?

### Practical information when applying the Business Model Canvas

Osterwalder and Pigneur (2010) suggest plotting the Business Model Canvas on A0 Format so that groups of people can jointly work on it. Sticky notes are recommended to sketch the nine business model building blocks, since they can easily be reallocated. Undergoing several canvases before settling down with one might be helpful, as the “best” business model might not be the first one which comes into mind.



The Business Model Canvas can also provide a structured basis to assess and evaluate a business model. For instance, performing a strengths, weaknesses, opportunities, and threats (SWOT) analysis for each of the nine building blocks outlined can be helpful to assess the internal and external perspective of a business model and support the innovative character of a business model.





### III.2.2 Lean Canvas by Maurya

The Lean Canvas is a business plan template created by Ash Maurya. Using nine basic building blocks it helps to deconstruct a business idea into its key assumptions. The Lean Canvas is adapted from the Osterwalder and Pigneur Business Model Canvas (BMC) and optimized for the Lean Startup methodology. Maurya added four boxes to the BMC (problem, solution, key metrics, unfair advantage) and in return took out four other boxes (key activities and key resources, customer relationships, key partners). Figure 3 displays the Lean Canvas. (Leanstack, s.a.). For more information regarding the Lean Canvas see LIVERUR Deliverable 3.4 (Kallai 2019 3), LIVERUR Deliverable 3.5 (Kallai 2019 4) and LIVERUR Deliverable 4.2 (Kallai 2019 5).



Figure 3: Depiction of the Lean Canvas adapted from The Business Model Canvas and licensed under the Creative Commons Attribution-Share Alike 3.0 Unported License (Leanstack, s.a.)



### III.2.3 Towards a sustainable Business Model Canvas

The BMC by Osterwalder and Pigneur (2010) does not explicitly address Circular Economy aspects or social aspects as part of the business model building blocks to enable a transition from a “Take-Make-Waste” paradigm towards circular value propositions and taking into account social costs and benefits. There is however, a wide range of adaptations and alternatives to the original BMC tool, some of those found in literature (non-exhaustive!) will be briefly outlined:

- With the “Circular Canvas” (Figure 4), the strategy agency and design studio Circulab provides a systemic tool to visualise and analyse business models and help designing regenerative business models, which consider its economic, social and environmental impacts (Circulab s.a.). It proposes an iterative procedure in order to improve the positive and negative impacts of the business models. For more information regarding the Circular Canvas see LIVERUR Deliverable 3.4 (Kallai 2019 3), LIVERUR Deliverable 3.5 (Kallai 2019 4) and LIVERUR Deliverable 4.2 (Kallai 2019 5)..
- The “Triple layered business model canvas” by Joyce and Paquin (2016), adds to the BMC an environmental layer based on a lifecycle perspective and a social layer based on a stakeholder perspective. The goal is to show how multiple types of value – economic, environmental and social – can be generated (Figure 5). Two new dynamics for analysis are introduced: horizontal coherence and vertical coherence
- The “Circular Design Guide” by the Ellen MacArthur Foundation (2016) comprises a range of methods to help understand, define, make and release circular innovations. Among others, the BMC elements are described from a circular perspective (Figure 6)
- The Sustainable Business Model Canvas employed in the CASE-project (CASE 2018) adds two more boxes to the original BMC. The “Eco-Social Costs” and the “Eco-Social Benefits –elements (Table 3)

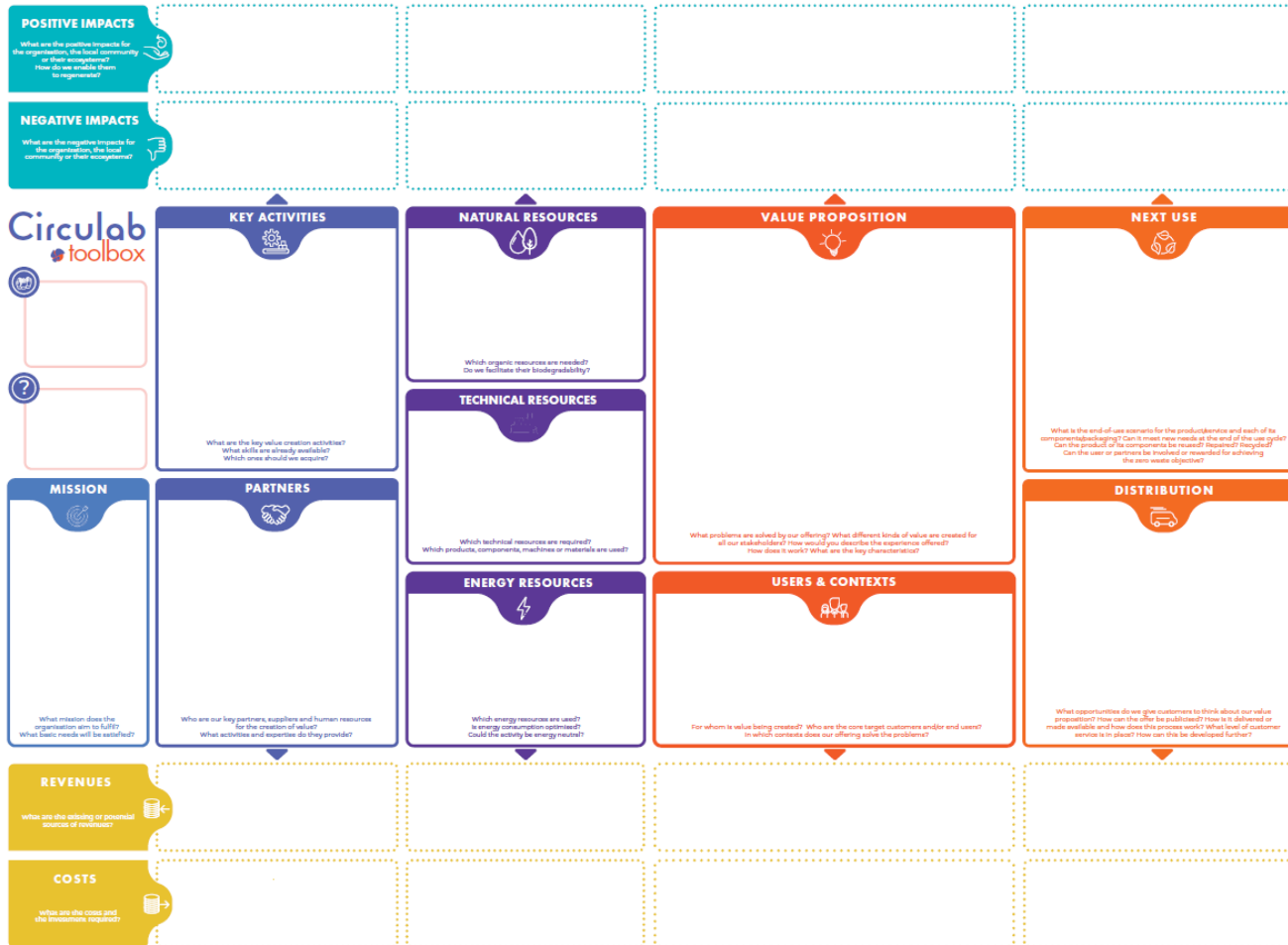








Figure 4: Circulab toolbox - the Circular Canvas (Circulab s.a.)



Figure 5: Triple layered business model canvas (TLBMC) (Joyce and Paquin 2016)



 <p><b>Key Partnerships</b></p> <p><b>How</b> might you strengthen your partnerships with organisations across the value chain to benefit from circularity (flows of materials, information and capital) in the system?</p> <p><b>What</b> new or unexpected partnerships can you form to grow circularity within your organisation and the system?</p>	 <p><b>Key Activities</b></p> <p><b>What</b> activities might best help you achieve your value proposition?</p> <p><b>What</b> might be the positive externalities (i.e. the consequences of your actions on others) of your activities? And how might you monitor and design out any negative externalities?</p> <p><b>How</b> might you create new forms of human, natural or financial capital?</p>	 <p><b>Value Proposition</b></p> <p><b>Start by asking yourself:</b> what are the needs you are aiming to meet? Is it a product or is a service required to fulfil these needs?</p> <p><b>Is there</b> anything associated with your product/service that has potential value to others?</p> <p><b>How</b> will you create a compelling story about your value proposition?</p>	 <p><b>Customer Relationships</b></p> <p><b>What</b> feedback loops will you build in with your customers to become more nimble and adaptable to their feedback?</p> <p><b>How</b> might you connect customers with other parts of the journey of your product/service or materials?</p>	 <p><b>Customer Segments</b></p> <p><b>Who</b> will be the main customers or users of your product/service?</p> <p><b>Who</b> else might benefit from or will be affected by your materials/ product/ service? Also consider beneficiaries beyond your immediate value chain and industry.</p>
	 <p><b>Key Resources</b></p> <p><b>How</b> might you build a multi-disciplinary team within or across organisations to create value in a Circular Economy? How might you embrace connectivity?</p>			





	<p><b>What</b> capabilities do you need to enable circular flows and feedback mechanisms and run your organisation successfully in the short and long term?</p> <p><b>Where</b> will your resources come from (renewable or finite source) and what will happen to them after use?</p>		<p>you to identify new opportunities?</p> <p><b>What</b> role could you play in the reverse logistics chain?</p>	
<p></p> <p>Costs</p> <p><b>Which</b> costs could be shared or lowered through other users and partners?</p> <p><b>Could you</b> shift from an ownership model of under-utilised assets to payment for access and usage?</p> <p><b>How</b> might you reduce cost volatility and dependence on the use of finite resources?</p> <p><b>What</b> can you do to mitigate risk?</p>		<p></p> <p>Revenues</p> <p><b>How</b> might you diversify opportunities to increase resilience, growth and innovation?</p> <p><b>How</b> might “growing the pie” (through value creation elsewhere in the system) impact favourably on your own future success?</p> <p><b>How</b> might your business model help create other types of value? Human, social or natural capital?</p> <p><b>How</b> might new services increase revenue from existing products, assets or your delivery systems?</p>		

Figure 6: The Circular Design Guide – Business Model Canvas (own compilation based on Ellen MacArthur Foundation 2016)



*Table 3: The Sustainable Business Model Canvas – Eco-Social Costs and Eco-Social Benefits elements (own compilation based on CASE 2018)*

<b>Eco-Social Costs</b>	<b>Eco-Social Benefits</b>
<ul style="list-style-type: none"> <li>• What ecological or social costs is our business model causing?</li> <li>• Which Key Resources are non-renewable?</li> <li>• Which Key Activities use a lot of resources?</li> </ul> <p>Evaluation Instruments:</p> <ul style="list-style-type: none"> <li>• Life-Cycle Assessment (of products and services)</li> <li>• Common Good Balance Sheet</li> </ul>	<ul style="list-style-type: none"> <li>• What ecological or social benefits is our business model generating?</li> <li>• Who are the beneficiaries? Are they potential customers?</li> <li>• Can we transform the benefits into a Value Propositions? If yes, for whom?</li> </ul> <p>Instruments:</p> <ul style="list-style-type: none"> <li>• Social Reporting Standard</li> <li>• Common Good Balance Sheet</li> </ul>





### III.3 RESTART Sustainable Business Model Innovation (Jørgensen and Pedersen 2018)

“RESTART Sustainable Business Model Innovation” by Jørgensen and Pedersen (2018) is a book on how companies and organisations can design innovative business models, which are meant to be both sustainable and profitable. The authors identified three major trends, which make business model innovation inevitable and call for continuous adaptations: sustainability issues, digitalization and the fourth industrial revolution as well as changing consumer preferences, lifestyles and consumption patterns. The “RESTART Framework” for sustainable business model innovation consists of seven factors (see Table 4), which constitute a roadmap for restarting a business model. In practice, the factors do not need to be dealt with in the R-E-S-T-A-R-T order as they are displayed in Table 4. They could be handled the opposite way or e.g. start from the Circular Economy factor; this depends on the stage a company or organisation is in.

Table 4: Seven factors of the RESTART Framework (own compilation based on Jørgensen and Pedersen 2018)

RESTART Framework Factors	Description
Redesign	Business models will need to change to become more sustainable and respond to a changing environment → tools to think, articulate and act are needed
Experimentation	Controlled experimentation shall help companies identifying what works and what does not
Service logic	Value creation and value delivery shall be oriented on providing the consumers access rather than ownership
The Circular Economy	Business model design shall consider the way resources are acquired, processed, used and reused
Alliances	To develop and implement solutions which address service logic and circularity, alliances with other entities will be necessary
Results	Emphasize on results in terms of addressing the right externalities and material sustainability issues, which are related to the core business, strategy and performance
Three-Dimensionality	Social, environmental and financial objectives shall be reflected in organizational design, leadership and management control systems

Based on the RESTART Framework, the authors developed the “Business Model RESTARTer”. This is a reiterative process model and tool, which aims at giving inspiration and guidance for sustainable business model innovation in practice (Jørgensen and Pedersen, 2018).

RESTARTer is based on four phases for sustainable business model innovation, a set of questions shall guide through the innovation process (Figure 7). The first two phases stress on the problem formulation including the “shadowy” and “sunny” sides (negative and positive externalities respectively) of the business model. While phases three and four aim at developing and testing new solutions and find ways to integrate them into the business model. For these latter two phases, companies and organisations can find orientation to address the shadowy sides of their business e.g. in the UN Global Compact (UNGC) principles in the area of human rights, labour, environ-

ment and anti-corruption. The UN Sustainable Development Goals (SDGs) can be used as inspiration on how to explore the sustainability opportunities and improve the sunny sides of their business (Jørgensen and Pedersen 2018).



Figure 7: “The business model RESTARTer”: a process model for sustainable business model innovation (own compilation based on Jørgensen and Pedersen 2018)



### III.4 Sustainable Business Model Archetypes (Bocken et al. 2014)

Bocken et al. (2014) undertook a literature and practice review to develop sustainable business model archetypes. The paper formalizes a categorization of business model innovations to deliver sustainability by using a systematic review approach. This is behind the background that there is extensive literature on the theory for business models for sustainability (e.g. literature review of Stubbs and Cocklin 2008) but there is no comprehensive view of how firms could embed sustainability in their business models.

#### Conceptual business model framework

The authors define a business model by three elements in this paper: the value proposition (product/service, customer segments and relationships), value creation and delivery (key activities, resources, channels, partners, technology) and value capture (cost structure, revenue streams) (adapted from Richardson 2008; Osterwalder and Pigneur 2005). Figure 8 displays the Conceptual business model framework by to Bocken et al. (2014, p. 48).



Figure 8: Conceptual business model framework (Bocken et al. 2014, p. 48 adopted from Richardson 2008 and Osterwalder and Pigneur 2005)

Business model innovations for sustainability are characterized by Bocken et al. (2014, p. 44) as follows: “Innovations that create significant positive and/or significantly reduce negative impacts for the environment and/or society, through changes in the way the organization and its value-network create, deliver value and capture value (i.e. create economic value) to change their value propositions”.

#### Sustainable business model archetypes

The authors developed eight sustainable business model archetypes (SBM) from academic literature and examples from practice. They proceeded in the following steps: literature review on sustainable business models to identify prominent themes, SBM typologies and frameworks; evaluation of existing conceptual frameworks found in the literature regarding their suitability of being a basis for categorization of SBM innovations; identification of (sustainable) business model examples from practice (sustainability rankings, websites of organisations involved in industrial sustainability, case studies on (sustainable) business models).

The eight sustainable business model archetypes developed by Bocken et al. (2014, pp. 47-54) were classified in three higher order groupings being technological, social and organizational oriented innovations, which present the main type of business model innovation (categorization by Bonns and Lüdeke-Freund 2013).

The first group of **technological innovations** comprises the following sustainable business model archetypes (Bocken et al. 2014, pp. 48-50): 1. Maximise material productivity and energy efficiency – which was defined as doing more with fewer resources, generating less waste, emissions

and pollution. 2. Create value from “waste”. Here the concept of “waste” is eliminated by turning waste streams into useful and valuable input to other production and by making better use of under-utilised capacity. SBM 3 is defined as substitution with renewables and natural processes and aims at reducing environmental impacts and increase business resilience by addressing resource constraints “limits to growth” associated with non-renewable resources and current production systems.

Each of the sustainable business model archetypes is displayed by Bocken et al. (2014) in the structure of the conceptual business model framework. As an example the sustainable business model archetype “Maximise material productivity and energy efficiency” is shown in Figure 9.

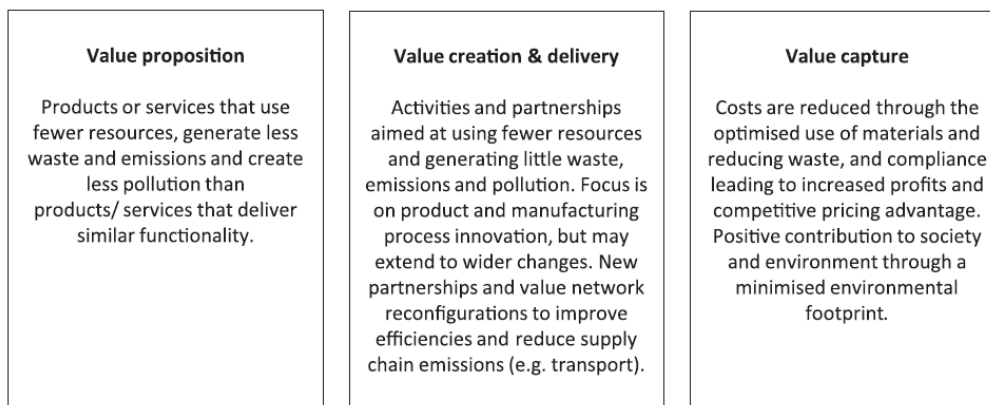


Figure 9: Sustainable business model archetype “Maximise material and energy efficiency” (Bocken et al. 2014, p. 50).

For the second category of **social innovations** further three sustainable business model archetypes are developed by Bocken et al. (2014, pp. 50-53): 4. Deliver functionality, rather than ownership – this archetype is defined by the authors as to provide services that satisfy users’ needs without having to own physical products. The 5<sup>th</sup> archetype – adopt a stewardship role – units business models who proactively engage with all stakeholders to ensure their long-term health and well-being. Archetype number 6 – business models who encourage sufficiency – includes solutions that actively seek to reduce consumption and production.

In the third group of **organizational oriented innovations** two remaining sustainable business model archetypes were defined by Bocken et al. (2014, pp. 53-54). One – archetype number 7 – deals with re-purposing the business for society/environment. This includes business models prioritizing delivery of social and environmental benefits rather than economic benefit (shareholder value) maximization. This happens via close integration between the firm, local community and other stakeholder groups and may be a shift from the traditional business model where the customer is the primary beneficiary. The last archetype (number 8) focuses on the development of scale-up solutions. Its definition is the delivering sustainable solutions at a large scale to maximize benefits for society and environment.

Figure 10 gives an overview of the eight sustainable business model archetypes by Bocken et al. (2014, p. 48) including examples for each archetype.

Groupings	Technological			Social			Organisational	
	Archetypes			Archetypes			Archetypes	
	<b>Maximise material and energy efficiency</b>	<b>Create value from waste</b>	<b>Substitute with renewables and natural processes</b>	<b>Deliver functionality rather than ownership</b>	<b>Adopt a stewardship role</b>	<b>Encourage sufficiency</b>	<b>Repurpose for society/environment</b>	<b>Develop scale up solutions</b>
Examples	Low carbon manufacturing/ solutions	Circular economy, closed loop	Move from non-renewable to renewable energy sources	Product-oriented PSS - maintenance, extended warranty	Biodiversity protection	Consumer Education (models); communication and awareness	Not for profit	Collaborative approaches (sourcing, production, lobbying)
	Lean manufacturing	Cradle-2-Cradle	Solar and wind-power based energy innovations	Use oriented PSS- Rental, lease, shared	Consumer care - promote consumer health and well-being	Demand management (including cap & trade)	Hybrid businesses, Social enterprise (for profit)	Incubators and Entrepreneur support models
	Additive manufacturing	Reuse, recycle, re-manufacture	Zero emissions initiative	Result-oriented PSS- Pay per use	Ethical trade (fair trade)	Slow fashion	Alternative ownership: cooperative, mutual, (farmers) collectives	Licensing, Franchising
	De-materialisation (of products/ packaging)	Take back management	Blue Economy	Private Finance Initiative (PFI)	Choice editing by retailers	Product longevity	Social and biodiversity regeneration initiatives ('net positive')	Open innovation (platforms)
	Increased functionality (to reduce total number of products required)	Use excess capacity	Biomimicry	Design, Build, Finance, Operate (DBFO)	Radical transparency about environmental/ societal impacts	Premium branding/ limited availability	Frugal business	Crowd sourcing/ funding
		Sharing assets (shared ownership and collaborative consumption)	The Natural Step	Chemical Management Services (CMS)	Resource stewardship	Responsible product distribution/ promotion	Base of pyramid solutions	"Patient / slow capital" collaborations
		Extended producer responsibility	Slow manufacturing				Localisation	
			Green chemistry				Home based, flexible working	

Figure 10: The sustainable business model archetypes (Bocken et al. 2014, p. 48)

The authors propose that firms can use this categorization for shaping their own transformation by using one or a selection of sustainable business model archetypes. Each one of them can be used alone, but also different archetypes may be combined which may be almost necessary to reach real sustainability (e.g. deliver functionality rather than ownership, while maximizing material and energy efficiency). (Bocken et al. 2014, p. 54).

As limitations of the proposed categorization Bocken et al. (2017, p. 54) mention the reflective character of the sustainable business model archetypes, being based on historical examples of innovations, which make from time to time a revision necessary to include new innovative approaches. The archetypes also have a stronger emphasis on environmental innovations displaying the state of practice at date, this is why they suggest a further exploration of the role of social business model innovations in sustainability. Finally, the authors point out that although attempting to make the categorization of the archetypes mutually exclusive, the archetypes were exposed to the subjective nature of the coding process.

### III.5 Essential items regarding regional/rural context and Living Labs

An internal working paper (Major and Ratajczak 2018) resulted in a compilation of potentially relevant elements for the concept with the focus on the regional/rural context (Figure 11) and the Living Lab approach (Figure 12 and Figure 13).

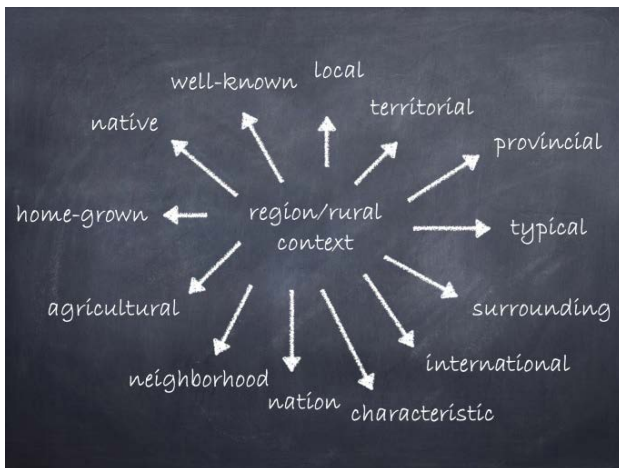


Figure 11: Relevant terms of the regional/rural context (Major and Ratajczak 2018)



Figure 12: Relevant terms of the Living Lab approach I (Major and Ratajczak 2018)



Figure 13: Relevant terms of the Living Lab approach II (Major and Ratajczak 2018)

These terms were considered and streamlined in the development of the RAIN Concept and were integrated into chapter V.1 (Basic Elements of the RAIN Concept).



### III.6 Deloitte and FAO global food value chain models

As the world population grows - especially in emerging markets, the dietary habits and consumption patterns, distribution and sales channels change. Water, soil and energy are more and more scarce resources, the production and distribution of food are critical issues and there is the need to think about new models for food value chains from a global point of view.

Deloitte (2015) distinguishes the stakeholders producers, processors, distributors and consumers on the one hand and „cross-cutting“ stakeholders as government, NGOs, Regulators on the other. A strong collaboration among the various stakeholders is demanded by Deloitte. In Table 5 the stakeholders and their key issues are displayed.

Under consideration of Living Lab approach and Circular Economy and open innovation approaches as it is the aim of LIVERUR, the Deloitte-model seems to be only linear and one-dimensional and needs to be extended.

*Table 5: Stakeholders in the global food value chains and their key issues (own compilation from Deloitte 2015)*

Stakeholder	Key issues
Producers	Efficiency, Market volatility, Capital, Innovation
Processors	Innovation to support growth, Globalisation of food, Secure/safe supply chain, Energy efficiency, Waste management
Retailers and distributors	Imperative of high quality, Complexity of multiple channels and formats, e-commerce channel, Packaging
Consumers	Food security and safety, Prices, Obesity, Health , Wellness
Regulators	Trade relationships, Food safety, Farm land acquisition

The FAO defines a sustainable food value chain as follows: *“the full range of farms and firms and their successive coordinated value-adding activities that produce particular raw agricultural materials and transform them into particular food products that are sold to final consumers and disposed of after use, in a manner that is profitable throughout, has broad-based benefits for society, and does not permanently deplete natural resources“* (Neven 2014, p. VII.)

This food value chain stresses the importance of the elements of vertical coordination (governance), covering the entire product subsector, value added and sustainability. The five components of added value are salaries for workers, profits for entrepreneurs and owners, tax revenues food supply for consumers and net impact on the environment. The sustainable value chain tries to integrate all kinds of enterprises and all interacting systems (economic, social, natural). As core functions in the chain are seen production, aggregation, processing and distribution (Figure 14). The governance is mentioned with various horizontal and vertical linkages. The actors are supported by three types of providers (physical inputs, financial services and non-financial services). Societal elements are sociocultural, institutional, organisational and infrastructural ones. Natural elements include soils, water, biodiversity, and other natural resources. The most important principles of a sustainable food value chain are given in Figure 15.



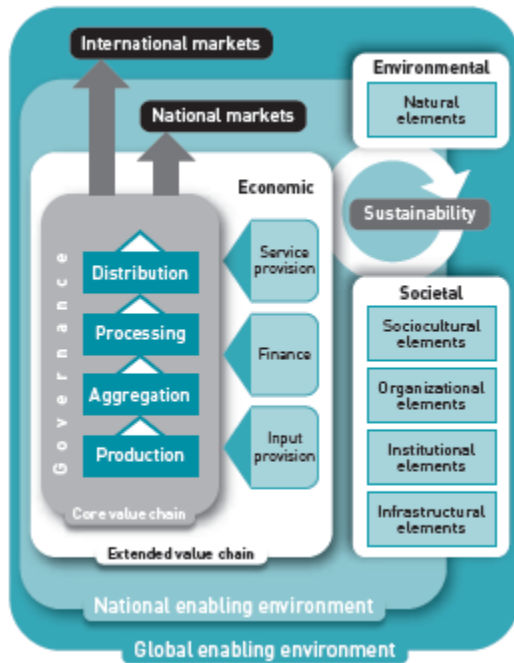


Figure 14: The sustainable food value chain framework (Neven 2014, p.11)



Figure 15: Principles of sustainable food value chain development (Neven 2014, p. 22)



### IV/ Summary of WP 2, WP 3, WP 4 and WP 6 findings

LIVERUR WP 2 concerns capitalizing and sharing know how on existing business models and value chains in rural areas, focusing on the creation of an extensive analysis of the existing business models in rural territories and on the development of a comprehensive approach to rural business model analysis. WP 3 concentrates on the collection of Living Lab case studies and analyses, assesses and maps methods and techniques, and develops a standardized definition of the Living Lab research concept. WP 4 aims at the creation of the new business model for rural areas under consideration of the Living Lab approach and Circular Economy theory.

#### IV.1 WP 2 findings

LIVERUR **Deliverable 2.1** (Cadiou 2018) summarises typical business model canvas criteria supplemented by subjective impact evaluation on the basis of the four LIVERUR pillars: I. Environment and resilience; II. Resource efficiency-efficacy and management; III. Competitiveness of SMAEs and rural value chain; IV. Openness to new markets and technologies. An analysis of 256 questionnaires with data about existing businesses in rural regions results in six typical rural business models:

- Conventional farm or mainstream farm
- Diversified agriculture,
- Food and beverages industry
- Rural SMEs and craft business
- Rural tourism
- Rural services to inhabitants

In general, a high impact of the businesses on rural development, local economy and businesses and environmental sustainability is to observe. There is medium impact on learning, public health, participation processes, job creation, regional economy, energy supply, biodiversity and air quality. The impact on social inclusion and national economy is low. Challenges of existing business models are described with the criteria of the tool Business Model Canvas in Table 6.

Table 6: Challenges of existing business models (own compilation based on Cadiou 2018)

Business Model Canvas Criteria	Challenges
Key partners	<ul style="list-style-type: none"> <li>• Cooperative structures to share equipment</li> <li>• Restore empowerment of local suppliers</li> <li>• Access to education</li> <li>• Cooperation and networks on various levels</li> <li>• Intermediary bodies that create competences among SMEs for circular principles</li> <li>• Cooperation of local stakeholders to provide complete and suitable experiences to customers</li> <li>• Role of tourism associates to upscale eco-tourism</li> <li>• Participation of citizens in the value chain</li> <li>• Partnerships of public and private bodies</li> </ul>
Key activities	<ul style="list-style-type: none"> <li>• Diversification of activities</li> <li>• Synergies between activities</li> <li>• Development of by-products and bio-based resources</li> </ul>
Key resources	<ul style="list-style-type: none"> <li>• Generational renewal</li> <li>• Environmental issues combined with farm modernization</li> <li>• Human, financial, equipment resources</li> <li>• Energy and water consumption</li> </ul>



Business Model Canvas Criteria	Challenges
	<ul style="list-style-type: none"> <li>• Trained workforce</li> <li>• New technologies, ICT access</li> <li>• Co-working spaces</li> <li>• Infrastructure development</li> <li>• Integrated and flexible approaches to the provision of services</li> </ul>
Value propositions	<ul style="list-style-type: none"> <li>• Profitability</li> <li>• Adaptation to changing environment, climate and consumer expectations, trends</li> <li>• Capacity to create connections and interdependencies</li> <li>• Requirements to increase food safety and health issues</li> <li>• Promotion of entrepreneurship spirit and new niches</li> <li>• Innovative value proposition</li> <li>• Operational excellence in product and service design</li> <li>• Social and economic benefits for communities</li> <li>• Reduction of youth outmigration</li> <li>• Services for ageing population</li> </ul>
Customer relationship	<ul style="list-style-type: none"> <li>• Pro-active relationship, networking at various levels</li> </ul>
Channels	<ul style="list-style-type: none"> <li>• Rebalance the power in the food chain</li> <li>• E-commerce development</li> <li>• Multi-value chain (energy tourism, food ...)</li> <li>• Short and local channel development</li> <li>• Connection to global value chain</li> <li>• Integration into competitive value chains</li> </ul>
Customer segments	<ul style="list-style-type: none"> <li>• Consumer expectations for food quality, safety, environmental concerns, convenience, pleasure</li> <li>• Management of diversified client portfolio</li> <li>• Customer share value</li> <li>• Contemporary application of traditional craft, skills, experience</li> <li>• Give youth the “desirability to stay”</li> </ul>
Cost structure	-
Revenue streams	<ul style="list-style-type: none"> <li>• Increase revenue stream and value added</li> <li>• Valuing ecosystem services</li> <li>• Find balance between investments to develop activities and return on investments</li> <li>• Value creation through Circular Economy</li> <li>• Develop income sources through diversified activities, new business opportunities</li> <li>• Increase value captures through partnerships and cooperation</li> <li>• Territorial coordination structure that enhances values and ensures a share towards local players</li> <li>• Extend operations that generate social benefits</li> </ul>

LIVERUR **Deliverable 2.2** (CESIE 2018 1) provides information about the LIVERUR benchmarking criteria for comparison of existing value-chain approaches. The 24 criteria cover topics like social, economic, technological and environmental impact, sustainability, open innovation, Circular Economy and infrastructure and are to consider in a benchmarking tool for rural entrepreneurs (Table 7).



Table 7: Indicators of a benchmarking tool for rural entrepreneurs (CESIE 2018 1)

	Most relevant indicators
Economics	<ul style="list-style-type: none"> <li>• Investments in innovation and research;</li> <li>• Relationship with clients at national level;</li> <li>• Relationship with clients at local level;</li> <li>• Relationship with suppliers at local level;</li> <li>• Relationship with clients at regional level.</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Green jobs in the local economy;</li> <li>• Use of raw materials;</li> <li>• Use of renewable energy;</li> <li>• Energy efficiency and consumption reduction – Number of internal policies for staff, targeting energy consumption reduction;</li> <li>• Water consumption reduction – Number of internal policies for staff, targeting water consumption reduction.</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Recruitment of personnel in relation to the community where the company operates;</li> <li>• Relations with the Public Administration and Territorial Community – Total public contributions received in EUR;</li> <li>• Gender equality – Percentage of women in organization;</li> <li>• Gender equality – Percentage of men in organization;</li> <li>• Gender equality – Female wage rate (average).</li> </ul>
Innovation	<ul style="list-style-type: none"> <li>• Number of improved products/services – Total number;</li> <li>• Lifetime of an innovative product/services (average duration);</li> <li>• Number of products/services launched (in the last years).</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• Integration of Digital Technology;</li> <li>• Digital performance – use of internet services;</li> <li>• Digital performance – Business digitization – Percentage of online marketing activities (using social media, website, etc.);</li> <li>• Digital performance – Business digitization – Percentage of e-invoices.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• Contribution to newly developed transport services;</li> <li>• Logistics – Percentage of goods exports (regional) (production output).</li> </ul>

The SWOT analyses of 19 regions described in LIVERUR Deliverable 2.3 (CESIE 2018 2) give insights into the importance, weaknesses and challenges of factors of business models especially in rural areas from the viewpoint of local/regional experts and should be taken into account in an innovative business model concept and new value creation mechanisms. Similarities and differences among regions are presented in detail.

Common strengths are for example that the business model conventional farming is a source of regional growth, markets for local products are growing as well as the number of local entrepreneurs, young entrepreneurs and partnerships. Environmental friendly activities are implemented and IT services integrated. There is a great importance of EU funding and investments. Opportunities are seen in the exploitation of technologies and renewable energies, in traditional production and the involvement of citizens.

Weaknesses are for example high costs of production, a lack of ICT skills and internet access, low awareness of waste management and Circular Economy, threats evolved in climate and natural hazards, a lack of population and especially skilled workers, an aging population, a low development of public transport and other infrastructure. Nevertheless, there are various differences not only among the six different business model types but also among the same types when located in different regions. This is a strong argument for regionally adapted business model concepts.



In the frame of WP 2 as co-creative work a “Serious game” has been developed to deal with issues and look for solutions for economic development through a participative process of diversified stakeholders. The challenges for the LIVERUR purpose were dedicated to the following topics: smart rural, social and cultural services, tourist and attractive territories, local energy production and use, business and organisation support services, rural Circular Economy.

Solutions could be achieved by arranging the following elements in a way that seemed purposeful for the objective:

- Financial Flow (social value, benefit/expense)
- Organisations (private company, public institution, third party organisation)
- Communication (mobile network, internet, local media)
- Stakeholders (farmer, citizen, traveller/tourist, match maker, user)
- Activities (farming, processing)
- Energy
- Amenities
- Equipment

LIVERUR **Deliverable 2.4** (Cadiou 2019) is about the creation of a benchmark study of traditional rural business models and concentrates on the rural context. On the basis of Deliverable 2.2 findings on the most relevant indicators six groups of indicators have been identified to describe the regional/rural context of business models, see Table 8. The indicators provide relevant information on NUTS 2 level which is not always appropriate for the pilot regions but the comparison among the regions on the same level was important. Deliverable 2.4 supplies 13 regional profiles, giving in a visual way their position regarding the benchmark criteria, and a comprehensive and useful guide for WP3 and WP4, to move from the current situation to Living Lab innovative business models.

Table 8: List of regional benchmarking criteria (Cadiou 2019)

Category	Type of criteria	Criteria	Indicator	Unit
Economic	Quantitative	Gross Domestic Product	GDP/capita	PPS
	Quantitative	Investment in innovation and research	% of GDP	%
Social	Quantitative	Gender equality: difference between men and women employment rate	Gender gap for the employment rate	%
	Quantitative	Gender equality: gender paygap	average gross hourly earnings of male paid employees – female paid employees, as a percentage of average gross hourly earnings of male paid employees	%
	Qualitative	Do the activities of the territory foster inclusive and equitable quality education and promote lifelong learning opportunities?	no / moderate efforts / very important issue within the territory	-

Category	Type of criteria	Criteria	Indicator	Unit
	Qualitative	Are there specific programs targeting the social inclusion of disadvantaged groups	yes / no	-
	Quantitative	Expenditure on cultural services	% of GDP	%
Environmental	Quantitative	Green jobs on the territory	Percentage of green jobs on the territory (Number FTE/total FTE of region)	%
	Quantitative	Use of renewable energy	Percentage of renewable energy (/total energy used)	%
	Quantitative	Water consumption	Water consumption/hab.	million cubic meter/capita
	Qualitative	Rural landscape structure	high/mid/low dominance - high/mid/low diversity	-
Technological / Innovation	Quantitative	Internet access	Percentage of households with internet access	%
	Qualitative	Internet access	Regular use of the internet, (% of persons who accessed the internet on average at least once a week)	%
	Quantitative	ICT	Employment in high-tech sector (% of total employment)	%
Infrastructure	Quantitative	Length of usable roads	Length(km)/surface area(km <sup>2</sup> )	km
	Qualitative	Intensity of flow (persons and merchandise) inside and out of the territory	low/medium/high	-
	Quantitative	Public health and safety: life expectancy	Life expectancy	years
	Quantitative	Public health and safety: number of healthcare personnel	Number of health care personnel / 100 000 inhabitants	-
Circular economy	Quantitative	Number of jobs related to the Circular Economy	Number of jobs (% total employment)	%
	Quantitative	Domestic material consumption per capita		tonnes /capita



## IV.2 WP 3 findings

LIVERUR **Deliverable 3.1** (Kallai 2018) summarises the results of data collection and analyses of existing rural Living Labs on the basis of the three main characteristics (user involvement, real life context, public private people partnership) with the aim to define the Living Lab concept in the rural context. It turned out that the most important elements and key factors of Living Labs are:

- the organizational structure,
- stakeholder segments (high involvement of users, versatile forms of communication, effective conversion of tacit knowledge, multidisciplinary teams, cohesion of stakeholders),
- product and service portfolio,
- various business models,
- ICT infrastructure and
- methods.

To stay in line with the EC Circular Economy strategy the elements of Living Labs need to be extended. Containing all the elements of a circular flow a Living Lab should comprise:

- user involvement,
- product as a service,
- ICT infrastructure,
- governance,
- circular supplies,
- methods, tools for business,
- innovation outcomes,
- the products' environmental footprints,
- resource recovery,
- new markets,
- skills development.

The four principles co-creation, trust, resilience and common values and it may establish open innovation by its architecture, methods and tools seem necessary for the implementation of a Rural Living Lab. The analysis of 86 existing Rural Living Labs in 25 countries shows that they are developing from a linear model towards a network model, and the triple helix model (industry, government, academia) is extended to a quadruple helix model (integrating civil community). The main focus is service driven innovation, mostly for the benefit of end-users. Finances are mostly depending on public/private finances, mainly EU funding.

In LIVERUR **Deliverable 3.2** (Kallai 2019 1), 26 detailed Rural Living Lab case studies are conducted in order to categorize and specify the main characteristics. Main driver of Rural Living labs is a participatory design, which consists of the main elements need-finding, conceptualization, prototyping, implementation, commercialization. The case studies are the base for a scenario analysis in Task 3.3.

LIVERUR **Deliverable 3.3** (Kallai 2019 2) is about the challenges of implementation of a Living Lab. The six most important categories to draft a Living Lab due to the harmonisation cube are:

- User involvement
- Service creation
- Infrastructure



- Governance
- Innovation Outcomes
- Methods and tools

These categories have to be considered in the phases of setup, sustainability and scalability and regarding organisational, contextual and technological issues. As a tool for better clarity and checking the 3 X 3 dimensions are visualised in the shape of a cube.

**LIVERUR Deliverable 3.4** (Kallai 2019 3) compares the traditional value chain approach with a platform based Living Lab concept. It describes the elements of the Cambridge Business Model (value proposition, target customer segments, distribution channels, customer relationships, value configurations, core capabilities, commercial network, partner network, cost structure and revenue model) and the Lean Canvas (problems, value proposition, solution, channels, cost structure, key metrics, unfair advantage, customer segments). In addition the Circular Business Model Canvas follows the multi-actor involvement, sustainable differential advantage, range of applications, commercial viability, customer needs, scalability, transferability to other regions or sectors and TRL (Technological Readiness Level) improvement.

**LIVERUR Deliverable 3.5** (Kallai 2019 4) is about the development of innovative models and the approach of Living Labs as a framework to include collaboration, co-creation, prototyping, testing new products, services, processes or ideas. One topic of inspiration is the Circular Economy approach. Together with sharing knowledge and capabilities in the sense of open innovation it may foster the rural development. Modern open innovation approaches connect internal innovation processes with external ideas, involving not only institutional players but also end-users and civic actors (Open Innovation 2.0). Doblin Inc. (2019) structured ten types of innovation (see Table 9).

Table 9: 10 types of innovation (Doblin Inc. 2019 in Kalai 2019 4)

	Types of innovation
Finance	<ul style="list-style-type: none"> <li>• Business model</li> <li>• Networking</li> </ul>
Process	<ul style="list-style-type: none"> <li>• Enabling process</li> <li>• Core process</li> </ul>
Offering	<ul style="list-style-type: none"> <li>• Product performance</li> <li>• Product system</li> <li>• Service</li> </ul>
Delivery	<ul style="list-style-type: none"> <li>• Channel</li> <li>• Brand</li> <li>• Customer experience</li> </ul>

It is important – for the RAIN Concept and to assess the approach – to integrate:

- the four main pillars of Living Labs (Environment and Resilience; Resource efficiency, efficacy and management; competitiveness of value chains; openness to new markets and technologies);
- the organisational, contextual and technological fundamentals (user involvement, service creation, infrastructure, governance, innovative outcomes, methods and tools);
- the transition to a circular approach (sustainability, customer needs, commercial viability, application, scalability, TRL improvement);
- Open Innovation (Finance, process, offering, delivery).





In redefining the processes and considering a sharing economy, new market segments can be approached among the players Business (B), Consumers (C), Peer platforms (P) (business to business – B2B, business to consumer – B2C, consumer to consumer – C2C, consumer to business – C2B, peer to peer – P2P).



### IV.3 WP 4 findings

LIVERUR **Deliverable 4.1** (Grüneis et al. 2019) reports about the selection of suitable business models in each of the piloting areas for further processing within the LIVERUR project. For this purpose task 4.1 developed a system of criteria including crucial aspects of the LIVERUR project (business management, Circular economy, Living Lab-multi-actor approach, open innovation, rural development, economic, social and ecological sustainability, climate change). The set of criteria gives also hints to which properties of projects are important for description of an innovative Rural Living Lab and should be reflected in the RAIN Concept:

- User-centered
- Multi-actor approach
- Level of engagement/participation
- Openness
- Real-life setting
- Technological integration
- Innovation
- Regional conditions
- Resources
- Health and wellbeing
- Quality education and learning
- Social equity
- Culture
- Climate action and biodiversity
- Resource management and energy from renewable resources
- Products/material regeneration
- Responsible production and consumption

The proposed projects from the pilot regions were analysed according to the above mentioned criteria and visualized with radar charts. After consultation with the pilot region partners, 20 projects/business models/initiatives were chosen for further development within the LIVERUR project.

LIVERUR **Deliverable 4.2** (Kallai 2019 5) summarises various models and approaches for business models. Especially it compares linear approaches (e.g. Lean Canvas) and circular approaches (e.g. Circular Business Model Canvas) and works out the advantages and benefits of a circular approach in environmental performance, economic development and social inclusion when it is applied in various phases and stages of a project. In addition, there are suggestions to integrate Living Lab characteristics into the circular approaches by adding relevant building blocks to the canvas scheme (sustainable development goals, RAIN principles, TRL level, user centric/ICT enabled experimentation environment, Rural Living Lab Governance Model (PPPP) and Rural Living Lab mission statement.

Another chapter is about the development of a platform based business model including all the above mentioned characteristics. Elements of a roadmap are drafted which comprise

1. fundamental elements (ICT innovation infrastructure, governance infrastructure, innovative services, government role, innovation culture, stakeholder networking, performance in sustainable circularity, SDG, TRL and Living Lab assessments);



2. the horizontal actions (designing the innovation in rural context, unlocking investment in the rural economy, harnessing the role of rural business and consumers, recycling society waste targets review, resource efficiency target) and
3. vertical actions (regenerate, share, optimise, loop, virtualise, exchange)

which are needed for implementation.

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As a conclusion the essential components for a roadmap in the sense of the LIVERUR project are:

- Designing and adapting business development and innovation concepts, such as clusters, to the specificities of rural regions;
- making the most of digital possibilities, including digital services for new modes of education and communication to build innovation capacity, and through the delivery digital services in all domains to facilitate daily life;
- design and innovation in Rural context;
- unlocking investment in the rural economy;
- harnessing the role of business and consumers;
- towards a recycling society – waste as a resource;
- waste targets review;
- resource efficiency target;
- clustering actors, application fields, products and processes.

#### IV.4 WP 6 findings

LIVERUR **Deliverable 6.1** (Kotoudis 2019) is about needs and challenges of the entrepreneurs in the LIVERUR pilot regions which have been asked to fill a structured questionnaire. The relevant output for task 4.3 is that:

- The RAIN Concept that social sustainability and stakeholders involvement should play a major role in marketing and distribution to reach customers;
- Work-life balance is an important topic;
- Capabilities and potential of business growth have to be analysed;
- The technological readiness level and cooperations have to be improved;
- Rain principles should be considered;
- Open innovation procedures should be easily enabled;
- Especially there are needs on the topics space/premises, specialized staff/experts, product development, marketing activities, modern business and ICT equipment, buildings;
- Business data analyses and direct matchmaking in consulting are important;
- Specific needs for training and education are given.



## V/ Regional Circular Living Lab Concept (RAIN)

The previous chapters summarised all the important elements, findings, relations and processes to be integrated into the RAIN Concept. A simple System Dynamics like approach is used to bring structure into this huge cloud of different notions often with a similar meaning or intention. It should express the mutual influence and dependencies of necessary elements of a business model concept. Due to System Dynamics a complex system can be described using stocks, flows, feedback loops, table functions and time delays (Sterman 2002).

Most of the elements of the RAIN Concept can be seen as state variables (stocks/plans) which are altered by rates (flows/processes) in a certain amount depending on the characteristic of the feedback loops (functions and time delays). In addition, there are certain parameters – which are constant (most probably) over the observed period – and exogenous variables – which show influence on the system but cannot – or not easily – be changed from the system (Bossel 1985). Translated into a structure for our RAIN Concept it means that we have to deal with three different layers (categories of elements). (I) state variables – we call them RAIN Core Elements – which are determined by the stakeholders, (II) RAIN Principles, which have to be taken into account in all decisions and (III) exogenous variables – we call them RAIN Real Life Setting – which have to be taken into account but cannot easily be influenced by the stakeholders.

### V.1 Layers of the RAIN Concept

A first step to draft the RAIN Concept is to define its elements. Based on the literature review (chapter III), findings of WP 2, WP 3 and WP 4 (chapter IV), and guidance of System Dynamics the RAIN Concept (Figure 16) was designed with three layers:

- the puzzle elements in the centre represent the RAIN Core Elements, summarizing all the different fields a business model has to take care about;
- the second layer contains the RAIN Principles, which include the necessary components regarding the ideas of the LIVERUR project, including Living Lab approach, Circular Economy and sustainability;
- the third layer represents the RAIN Real Life Setting, which describes the exogenous environment of a business project. The RAIN Real Life Setting is important in its regional specification and will be elaborated in detail in LIVERUR Del. 4.4.

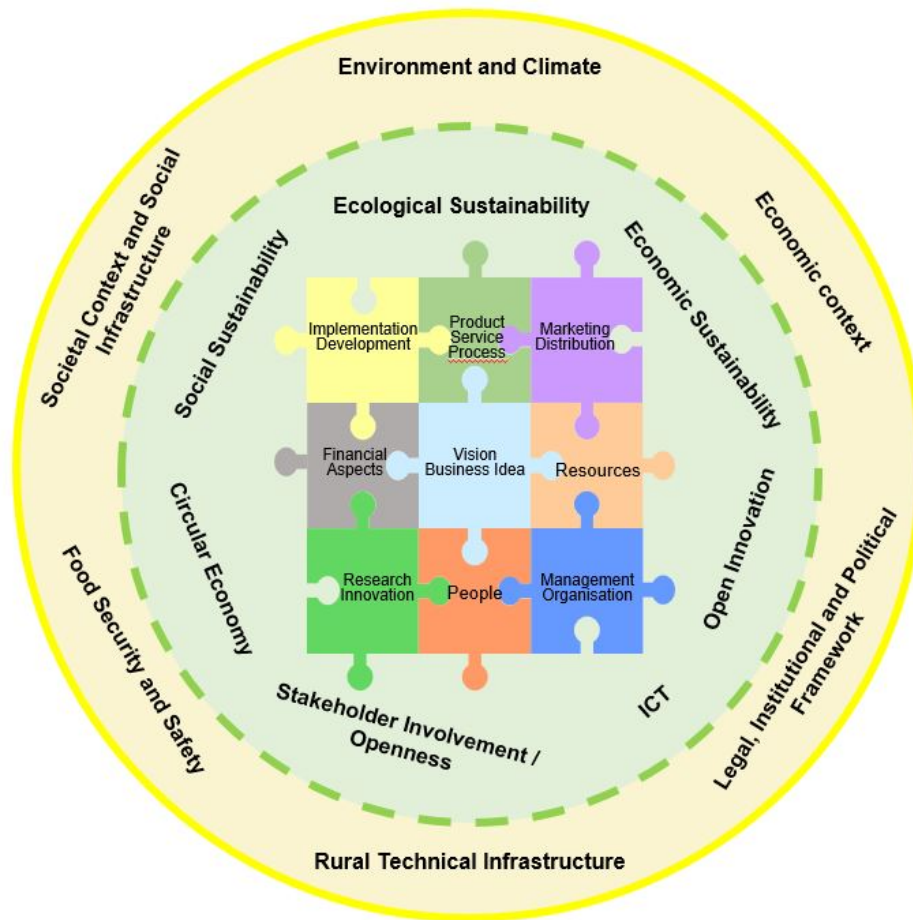


Figure 16: System of the RAIN Concept with three layers and their elements (own elaboration based on previous chapters' findings and feedbacks from LIVERUR project partners)

The RAIN Core Elements of RAIN include the following aspects: Vision / Business idea, People (Partners, Customers, Stakeholders), Resources, Research / Innovation, Implementation / Development, Management / Organisation, Financial aspects, Product / Service / Process and Marketing / Distribution (Table 10).

RAIN Principles (Table 11) comprise Ecologic Sustainability, Economic Sustainability, Social Sustainability, Circular Economy, Open Innovation, Stakeholder Involvement / Openness and ICT enabled environment.

While the RAIN Real Life Setting (Table 12) consists of the elements Environment and Climate, Economic Context, Societal Context and Social Infrastructure, Policy, Legal and Institutional Framework, Rural Technical Infrastructure and Food Security and Safety.

In Tables 10, 11 and 12 for each of the three RAIN layers (RAIN Core Elements, RAIN Principles and RAIN Real Life Setting) the summarised terms and categories, stemming from literature (chapter III) and LIVERUR deliverables (chapter IV) are listed. A more comprehensive table displaying also the references to the RAIN categories can be found in Annex 3.



Table 10: RAIN Concept – description of the RAIN Core Elements (own table)

RAIN Core Elements	Elements comprise e.g. the following terms of literature and LIVERUR deliverables
Vision, Business Idea	Vision, business idea, -model, needs and demands, problems, relationship with local suppliers, key partners, key activities, new markets, physical inputs, financial and non-financial services, customers, goal settings, differentiation
People (Partners, Customers, Stakeholders)	Target customer segments, customers' relationship (B2C, B2B, C2C, C2B, P2P), multi actor approach
Resources	Key resources, raw materials, physical inputs, financial and non-financial services, resources, technological integration, regional conditions, internal infrastructure, equipment, positive and negative externalities, partner network, valorisation of local resources, waste, resource efficiency, rural value chain
Research / Innovation	Investments in innovation and research, innovation, Innovation outcomes, innovation platform, sharing knowledge, internal innovation, external ideas, end-user, civic actors integration, types, levels and intensity of innovation
Implementation, Development	Implementation, Feedback loops, proactive adaptation, evaluation, continuous development, consumption, success management
Management / Organisation	Business and management, internal governance, processes and methods, internal capabilities, infrastructure, approaches to implementation
Financial Aspects	Finance, profitability, revenue, costs, efficiency, capital, efficacy, financial flow, liquidity, cash flow, solvency, cost structure, revenue model, fund raising, start-up capital, cost-benefit, non-financial values, value chain
Product, Service, Process	Product and service, value proposition, high quality, food safety, service outcome, captured, destroyed and/or missed value and value opportunities, service creation, value configuration, ownership versus access, scalability, transferability
Marketing / Distribution	Marketing and distribution, channels, multi channels, e-commerce, commercial network, audience (referred to customer segments), sales



Table 11: RAIN Concept – description of the RAIN Principles (own table)

RAIN Principles	Principles comprise e.g. the following terms of literature and LIVERUR deliverables
Ecologic Sustainability	Resource efficacy, energy efficiency, water consumption, renewable energy, resources, landscape structure, climate action and biodiversity, environmentally sustainable, efficiency, substitution with renewables and natural processes, re-purpose the business for society/environment, green jobs, environmental costs and benefits
Economic Sustainability	Job creation, green jobs in local economy, local personnel, maximisation of material and energy efficiency, deliverance of functionality rather than ownership, encourage sufficiency, development of scale-up solutions, organizational effectiveness and efficiency, drivers of productivity, scalability, transferability
Social Sustainability	Social cohesion, social sustainability, social value, social costs and benefits, culture, expenditures in cultural services, gender equality, health and wellbeing, wellness, adoption of stewardship role, quality education and learning, social equity, encourage sufficiency, integration, inclusion, re-purpose the business for society/environment, community development, social innovation, social entrepreneurship, social impact
Circular Economy	Circular Economy aspects, key activities, waste water reduction, life cycle analysis, environmental footprint, waste management, from design to recycling, create value from “waste”, primary and secondary raw materials, resource management and energy from renewable resources, products/material regeneration, number of jobs related to Circular Economy, domestic material consumption, business model for the whole supply chain, recycling, upcycling
Open Innovation	Open innovation, investments in innovation and research, number of improved products/services, lifetime of products/services, innovation outcomes, openness, innovation, vision driven, experimental environment, evaluation of innovative ideas, interdisciplinary, co-creation, contribution to newly developed transport services, logistics, range of applications, social and eco innovations
Stakeholder Involvement / Openness	PPPP, customer relationship, relation with administration, stakeholder segments, multi actor approach, engagement, participation, real life setting, end-market driven, multilateral, user-centred, customers, customers segments, relationships with clients – local, regional, national, Openness, user involvement, communication, multi-actor involvement
ICT enabled environment	ICT infrastructure, Internet access, integration of digital technology, digital performance, innovation, employment in ICT



Table 12: RAIN Concept – description of the RAIN Real Life Setting (own table)

RAIN Real Life Setting	Real Life Setting comprises e.g. the following terms of literature and LIVERUR deliverables
Environment and Climate	Environmental properties (landscape, soil, climate, bio-diversity, natural resources etc.)
Economic Context	Market and competition, market volatility, trade relations, globalisation, fundraising, startup capital, rural financial system
Societal Context and Social Infrastructure	Attitudes, values, concepts of life, human capital, social capital, rural poverty, awareness/importance/social acceptance of farming activities and farming/rural culture and heritage, social infrastructure, number of healthcare personnel
Policy, Legal and Institutional Framework	Legal regulations, laws, governance, policy, support at various levels (from local to EU)
Rural Technical Infrastructure	Technical infrastructure, length of usable roads, local and regional ICT-infrastructure
Food Security and Safety	Food security, food safety, (physical, social, economic) physical access to food, dietary needs, food preferences, health





## V.2 Premises and RAIN in a nutshell

This chapter summarises the premises on which the RAIN Concept is based as well as a short description of RAIN in a nutshell.

The RAIN Concept is based on the following premises:

- It integrates RAIN Core Elements, RAIN Principles and RAIN Real Life Setting.
- The starting point is recommended to be “Vision and Business Idea”, but there is no general sequence of working on the other elements – depending on the phase of the idea or the project. Feedback loops are important.
- Interdependencies exist among all the elements.
- For every RAIN Core Element, there is a worksheet on RAIN Principles and a set of suggested methods (both derived from literature and LIVERUR deliverables).
- It depends on time resources, type, number and qualification of participants which elements you choose to work on, how intensively or in how much detail you work on each of the RAIN Core Elements.
- The concept is flexible, open for exchange or additionally to RAIN Core Elements.

The presentation of the concept in the shape of a puzzle should express that:

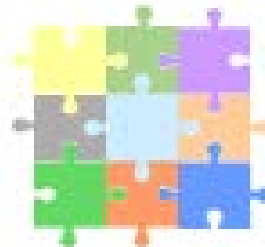
- There is no explicit start or end. Depending on the phase of a project and the progress on one or the other elements, any element can be used as a starting point for drafting the business model. In the end, everything should fit together.
- The RAIN Core Elements are interdependent, shaped by the RAIN Principles and embedded in the RAIN Real Life Setting.

The construction of the RAIN Concept in a nutshell (Figure 17):

The Rain Concept has three layers.



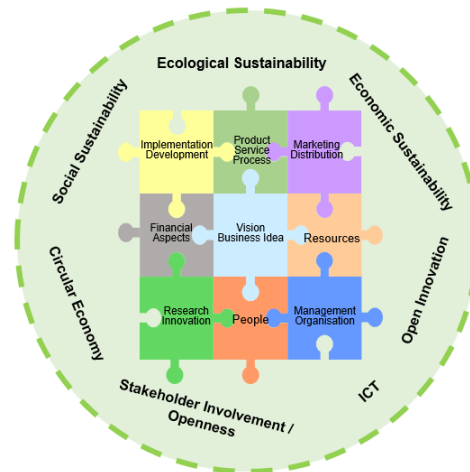
The RAIN Core Elements are arranged in the shape of a jigsaw puzzle.



The RAIN Core Elements capture the central business model.



Each RAIN Principle should be embedded in each RAIN Core Element.



The RAIN Real Life Setting limits or enables the business model.

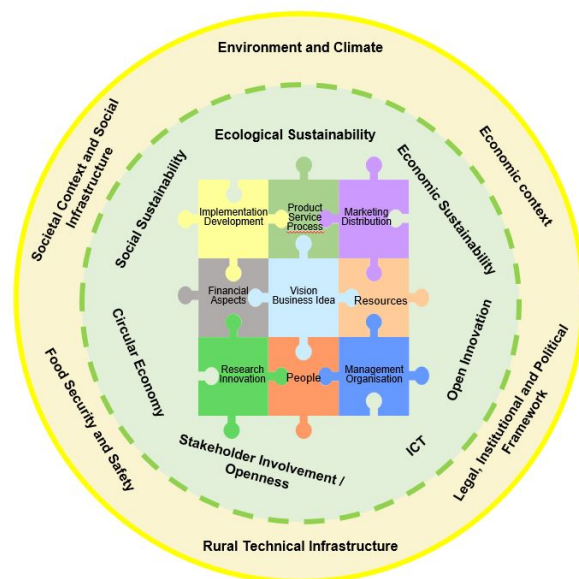


Figure 17: RAIN Concept in a nutshell (own figure)



### V.3 RAIN Concept application

The following chapter is dedicated to the application of the RAIN Concept. Before starting the RAIN process, please take into account our general recommendations regarding working with stakeholder groups in the grey box below.

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#### **Working with stakeholder groups – general recommendations**

Unless the group of stakeholders is already a well-integrated team, the first meeting is a good chance to get to know each other. It is recommended to plan sufficient time for an introduction round, as well as for small talks and a little game or anything creative that helps to build trust among each other. The different stakeholders can share their background and motivation to join the living lab and explain what kind of contribution (expertise, networks etc.) they would like to bring into the group. The group may then start with first reflections on the RAIN Core Element Vision / Business Idea. For the other elements of the RAIN Concept we would propose to start working on them in the following meeting/s. A common language and common culture should be found.

The application of RAIN follows a path of 5 tasks, which are displayed in Figure 18. We will explain this tasks by leading you through the process with one exemplary RAIN Core Element (“piece of the puzzle”) Vision / Business Idea.



## RAIN application in 5 TASKS

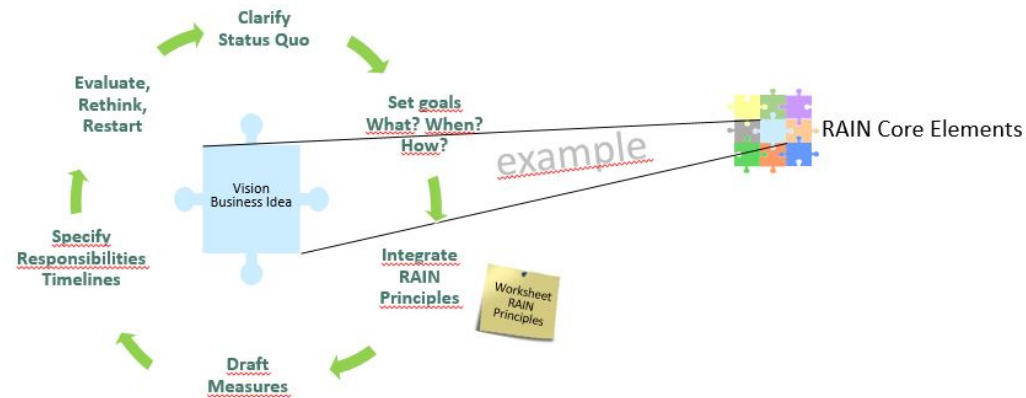
**1.** To start: Choose the RAIN Core Element Vision/Business Idea and take the regional specific worksheet RAIN Real Life Setting into consideration

**2.** Choose one of the suggested methods to elaborate this RAIN Core Element (following the LIVERUR Toolbox)

**3.** Follow the working steps for this RAIN Core Element („piece of the puzzle“)

**4.** Summarise all findings regarding the chosen RAIN Core Element (corresponds to one chapter of your RAIN Business Plan)

**5.** Choose next RAIN Core Element („piece of the puzzle“) - go back to task 2 and through all tasks for all 9 RAIN Core Elements

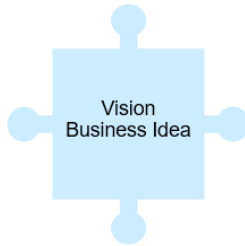


**Result: RAIN Business Plan**

Figure 18: Overview on RAIN application (own figure)



## Task 1



Choose the RAIN Core Element Vision / Business Idea and take the regional specifics from worksheet RAIN Real Life Setting into consideration. For the pilot regions of the LIVERUR project this worksheet can be found in Del. 4.4. RAIN Real-Life Setting, for other regions please use the clean worksheet RAIN Real Life Setting in Annex 1 and formulate the RAIN Real Life Setting for your region. You may find a simple definition of the elements of RAIN Real Life Setting in Figure 19.

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### Worksheet Real Life Setting

<p><b><u>ECONOMIC CONTEXT</u></b>  <i>Comprises the economic surroundings/regional economic conditions of a project/business, e.g.: developments on the market, job and competitive situation, etc.</i></p>	<p><b><u>ENVIRONMENT AND CLIMATE</u></b>  <i>Comprises e.g. climatic conditions, natural resources, soil, land cover etc.</i></p>
<p><b><u>SOCIETAL CONTEXT AND SOCIAL INFRASTRUCTURE</u></b>  <i>Comprises e.g. job and work situation, educational opportunities, cultural issues etc.</i></p>	<p><b><u>POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK</u></b>  <i>A project/business acts within a given framework of institutions and legal regulations (laws, regulations, responsibilities of authorities on various levels etc.).</i></p>
<p><b><u>RURAL TECHNICAL INFRASTRUCTURE</u></b>  <i>The regional and local technical and social infrastructure includes e.g. the existing ICT, usable roads and transport facilities, educational institutions, health care facilities etc.</i></p>	<p><b><u>FOOD SECURITY AND SAFETY</u></b>  <i>Comprises issues regarding the access to food, the safety of food, health aspects, etc.</i></p>



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Figure 19: Worksheet RAIN Real Life Setting (own figure)



## Task 2



Choose one of the suggested methods for the RAIN Core Element Vision / Business Idea following the Circular Living Lab Toolbox (LIVERUR Del. 5.2) and instructions in the present Deliverable chapter V.4.1. to V.4.9.

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### Use of methods

Regarding the use of methods we refer in first place to the Circular Living Lab Toolbox created in LIVERUR WP 5. It includes a summary of practicable methods as well as a detailed description of their application.

In addition, a list of methods including references is given in Annex 4 and colour-coded according to the level of effort needed in application: relatively easy to implement co-creative methods (green); co-creative methods or simple analyses which need specific effort for preparation and implementation (yellow); and specific analyses which need a certain effort and often detailed technologic knowledge (red).

For each of the RAIN Core Elements we suggest at least one simple to use and one advanced method as examples. Of course, most of the methods can be applied in a simple or in a more sophisticated way. The challenge is to find the method(s) appropriate for your task which takes into account the number and qualification of involved people as well as time, location and financial constraints and the topics.

### Task 3

Follow the working steps for the RAIN Core Element Vision / Business Idea according to Figure 20.

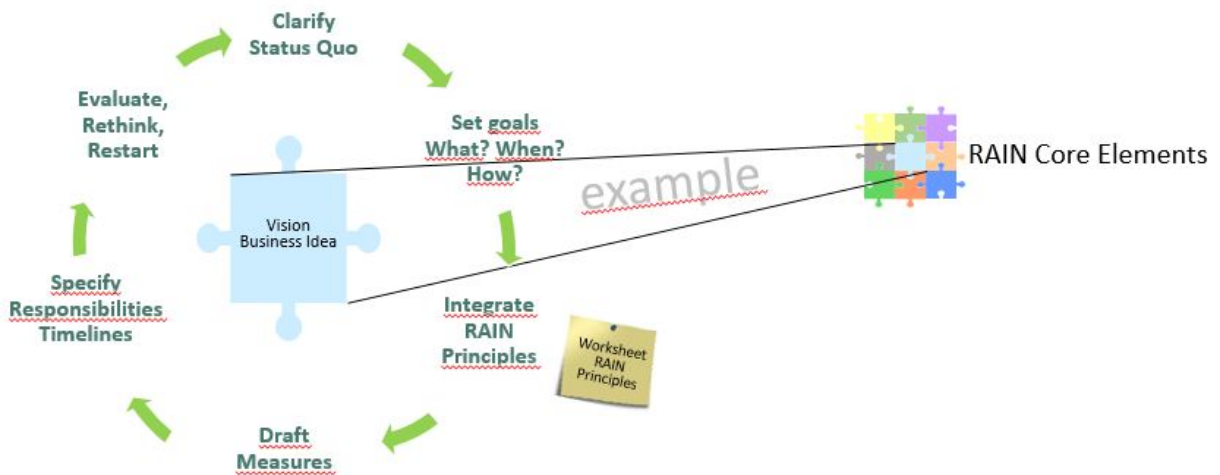


Figure 20: Working Steps in RAIN application (own figure)

The working steps are structured around the following questions:

- **Clarify Status Quo:** Where do we stand now?
- **Set goals – What? When? How?** Where do we want to reach the situation desired?
- **Integrate RAIN Principles:** How do we integrate the RAIN Principles in the respective RAIN Core Element? See explanation below!
- **Draft measures:** How do we want to reach the desired situation?
- **Specify responsibilities, timelines:** Who is responsible for the implementation of the measures? When do they have to be implemented (Milestones)?
- **Evaluate, Rethink and Restart:** Have we achieved the desired situation?





## Integration of RAIN Principles

The RAIN Principles are applied to the chosen RAIN Core Element. Figure 21 gives a simple explanation of the RAIN Principles for better understanding.

**Worksheet RAIN Principles**

**General instructions**

**ECONOMIC SUSTAINABILITY**

Means to ensure that a project/business is economically viable without public subsidies in the long term. Paying attention to maximisation of material and energy efficiency, human resources, etc.

**ECOLOGIC SUSTAINABILITY**

Means to ensure that a project/business pays attention to ecological aspects, e.g. efficient use of resources, animal and plant diversity, reduction of CO<sup>2</sup> emissions, substitution with renewables etc.

**SOCIAL SUSTAINABILITY**

Means to ensure that social aspects e.g. health and wellbeing of employees, equal treatment of women and men, possibilities of further education etc. in the project/business are taken care of, but also the interdependencies of the project/business with other companies.

**CIRCULAR ECONOMY**

Circular economies seek to keep resources in the system for as long as possible and to reduce waste. This can be achieved by the use of renewable resources (e.g. energy), by intelligent design (e.g. products that can be disassembled and repaired) or by certain services or behaviour (e.g. sharing, maintenance, reuse, recycling, upcycling).

**STAKEHOLDER INVOLVEMENT**

Means to involve as many potential stakeholders as possible in the foundation and operation phase of a project/business, and the openness of project/business activities for external participants.

**OPEN INNOVATION**

Means an opening of the innovation process of a project/business to external actors (e.g. other companies, population, science, administration) to develop solutions jointly. Data may be shared and openly accessible.

**ICT ENABLED ENVIRONMENT**

Inclusion of different devices of information- and communication technology are included in the project/business; integration of new technologies.

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Figure 21: Worksheet RAIN Principles – general instructions (own figure)





Print the empty worksheet RAIN Principles for the RAIN Core Element Vision / Business Idea (Annex 2) and work on it with your stakeholders.

To facilitate the work with the worksheet RAIN Principles we prepared several keywords for the moderator in the chapters V.4.1 to V.4.9 for each RAIN Core Element. The worksheet RAIN Principles including the keywords for the RAIN Core Element Vision / Business Idea is displayed also in Figure 22 below.

**Vision Business Idea**

**Worksheet RAIN Principles**

**ECONOMIC SUSTAINABILITY**  
*e.g. jobs creation and availability; local personal; resources; kinds of costs and revenues;*

**ECOLOGIC SUSTAINABILITY**  
*e.g. resource efficiency; energy efficiency; water consumption; renewable energy; climate action and biodiversity; landscape structure;*

**SOCIAL SUSTAINABILITY**  
*e.g. education and learning; integration; inclusion; gender equality, health and wellbeing; community development;*

**CIRCULAR ECONOMY**  
*e.g. regenerative system; design of circular processes; waste management;*

**STAKEHOLDER INVOLVEMENT**  
*e.g. important partners, stakeholders, customers; how to involve them;*

**OPEN INNOVATION**  
*e.g. stimulation of open innovation; potential kinds of innovation;*

**ICT ENABLED ENVIRONMENT**  
*e.g. possible ICT devices; potential ICT partners; ideas for smart support of the proposed activities;*

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Figure 22: Worksheet RAIN Principle Vision / Business Idea including exemplary keywords (own figure)



## **Task 4**

Summarise all the findings regarding the RAIN Core Element Vision / Business Idea. This summary corresponds to the chapter Vision / Business Idea in your final Business plan.

## **Task 5**

The following task is to choose the next RAIN Core Element (“piece of the puzzle”) and go through all the tasks and working steps again. Depending on time and resources this can be done for more or all the RAIN Core Elements. Ideally, in the end all RAIN Core Elements are edited with the RAIN Concept.

## **Result**

In the end the summaries of all edited RAIN Core Elements are condensed together in one report which is your Business plan.



## V.4 RAIN Core Elements

In the following chapters V.4.1 to V.4.9 the nine RAIN Core Elements will be explained in detail. For each RAIN Core Element we offer a definition from literature, propose simple and advanced methods for the working process and give some ideas on integrating the RAIN Principles into the respective RAIN Core Element.

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The RAIN Core Elements comprise the aspects:

- V.4.1 Vision / Business Idea
- V.4.2 People (Partners, Customers, Stakeholders)
- V.4.3 Resources
- V.4.4 Research / Innovation
- V.4.5 Implementation / Development
- V.4.6 Management / Organisation
- V.4.7 Financial aspects
- V.4.8 Product / Service / Process
- V.4.9 Marketing / Distribution

There is a prefilled worksheet on RAIN Principles for each RAIN Core Element in the subchapters which should serve as a help for the moderator in the process of RAIN application. In Annex 2, the empty worksheets on RAIN Principles are provided as templates for the work with the stakeholders.



## V.4.1 Vision / Business Idea

### 1. Definition

When elaborating the vision and business idea, it is crucial to start by asking “Why? – Why do we do, what we do?” (quotation by Sinek, 2011) and the customers’ benefits necessarily need to be in the focus of a business plan. The vision creation has to be based on needs and demands and should start with a process to win ideas, rate and select ideas and elaborate rough concepts, which should give first hints to key partners and key activities, markets and various resources. More detailed these considerations have to be made then in the following RAIN Core Elements. Essential points to consider here:

- What are the benefits of the business for the customers and its key partners?
- How does the business render the benefit?
- How does the business make money?

### 2. Suggested Methods

For the stage of winning ideas and to get a first picture about a vision on how to implement it various creativity techniques like Brainstorming, Brainwriting, Mindmapping, Delphi Poll, the SCAMPER-method are appropriate, mostly in workshop settings of small Discussion Groups, World Café, Fish Bowl etc..

**Simple method:** Brainstorming (moderated discussion of a defined problem in small groups, every idea welcome, the more the better, combination of ideas), in a non-verbal way: Brainwriting (exchange and development of ideas on sheets), see Pöchtrager and Wagner 2018.

**Advanced method:** Value Mapping Tool (Bocken et al. 2013) aims at stimulating idea generation and discussion from a multiple stakeholder perspective. In a workshop setting the tool differentiates between various forms of values: captured, destroyed, missed and value opportunities for major stakeholder groups: environment, society, customers and network actors. Companies or organisations shall better understand their overall value proposition. Unintended impacts on external stakeholders and alternative solutions may become apparent. In addition, SWOT-, PEST-, Competitor-, Life Cycle- and Scenario Analysis may be used.



### 3. Worksheet RAIN Principles

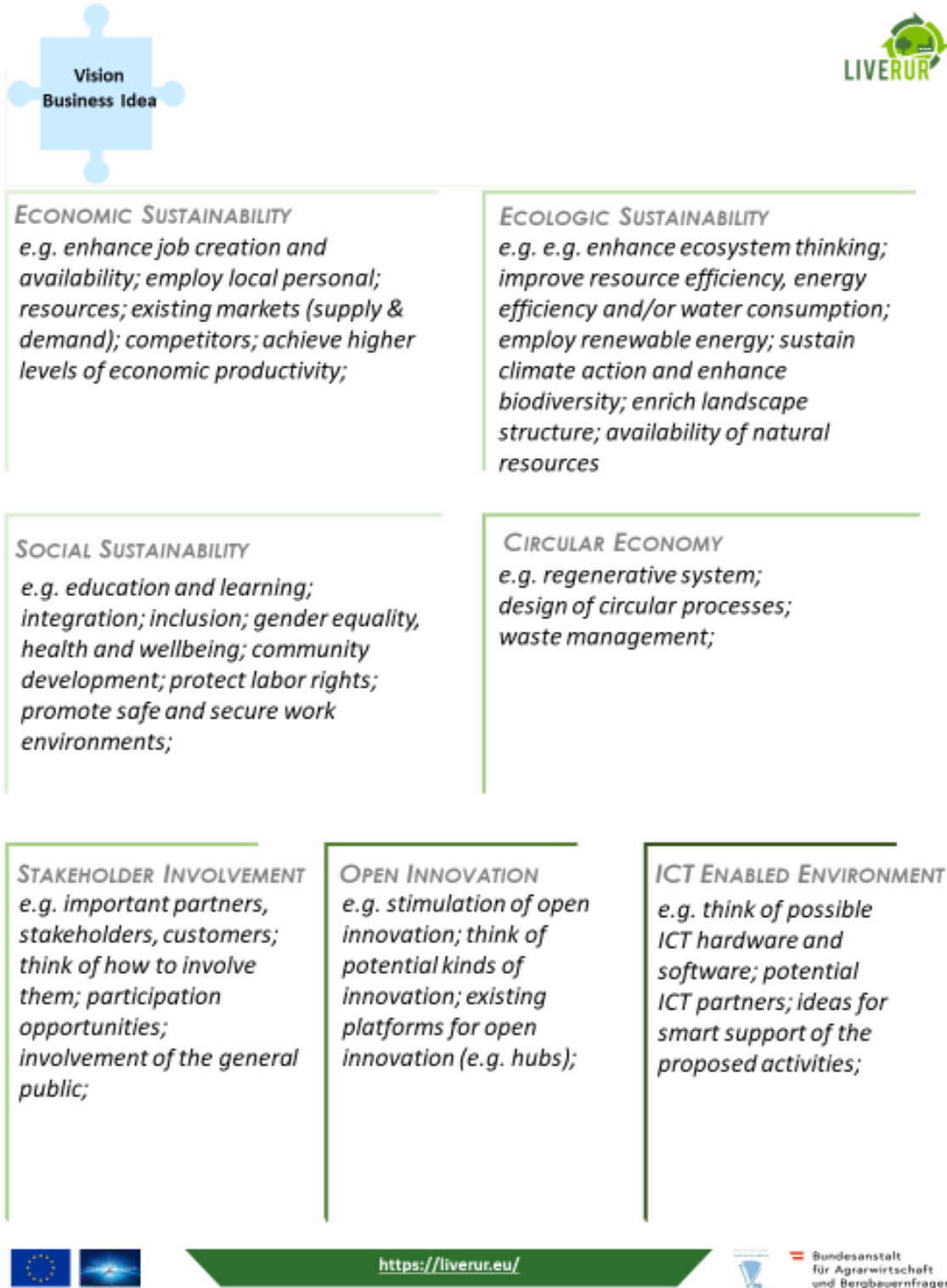


Figure 23: Worksheet RAIN Principle Vision / Business Ideas with examples (own figure)



## V.4.2 People (Partners, Customers, Stakeholders)

### 1. Definition

The status of involved and affected people should be identified: Who are the partners directly involved in the business, the employees, the stakeholders, the consumers or other people affected by the outcome of a business, who are investors or shareholders. The relationships, the type involvement or integration and the strength of influence have to be mapped. For example Deloitte (2015) distinguishes producers, processors, distributors, consumers, regulators, stakeholders. The role, knowledge, challenges of each key partner including customers have to be clear (see Cadiou 2018, Kallai 2018, Kallai 2019 2, Major and Ratajczak 2018) especially in this user centred and multi-actor approach.

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### 2. Suggested Methods

To get clear about the possibly involved and effected people methods like Stakeholder Analysis, Empathy Map, Key competences Analysis, People and Connections Map, Actor Constellation, Persona Concept and similar can be found in the literature.

**Simple method:** Stakeholder Analysis is a graphic presentation of the involved or affected people or groups of people and their strength of positive or negative influence; see Neuwirth and Wagner 2009.

**Advanced method:** Network Analysis (Baumfeld et al. 2009) means mapping of relations among people due to their position, affiliation, intensity and type also in quantitative way, with support of software (e.g NETDRAW, Visione, Netminer).

### 3. Worksheet RAIN Principles

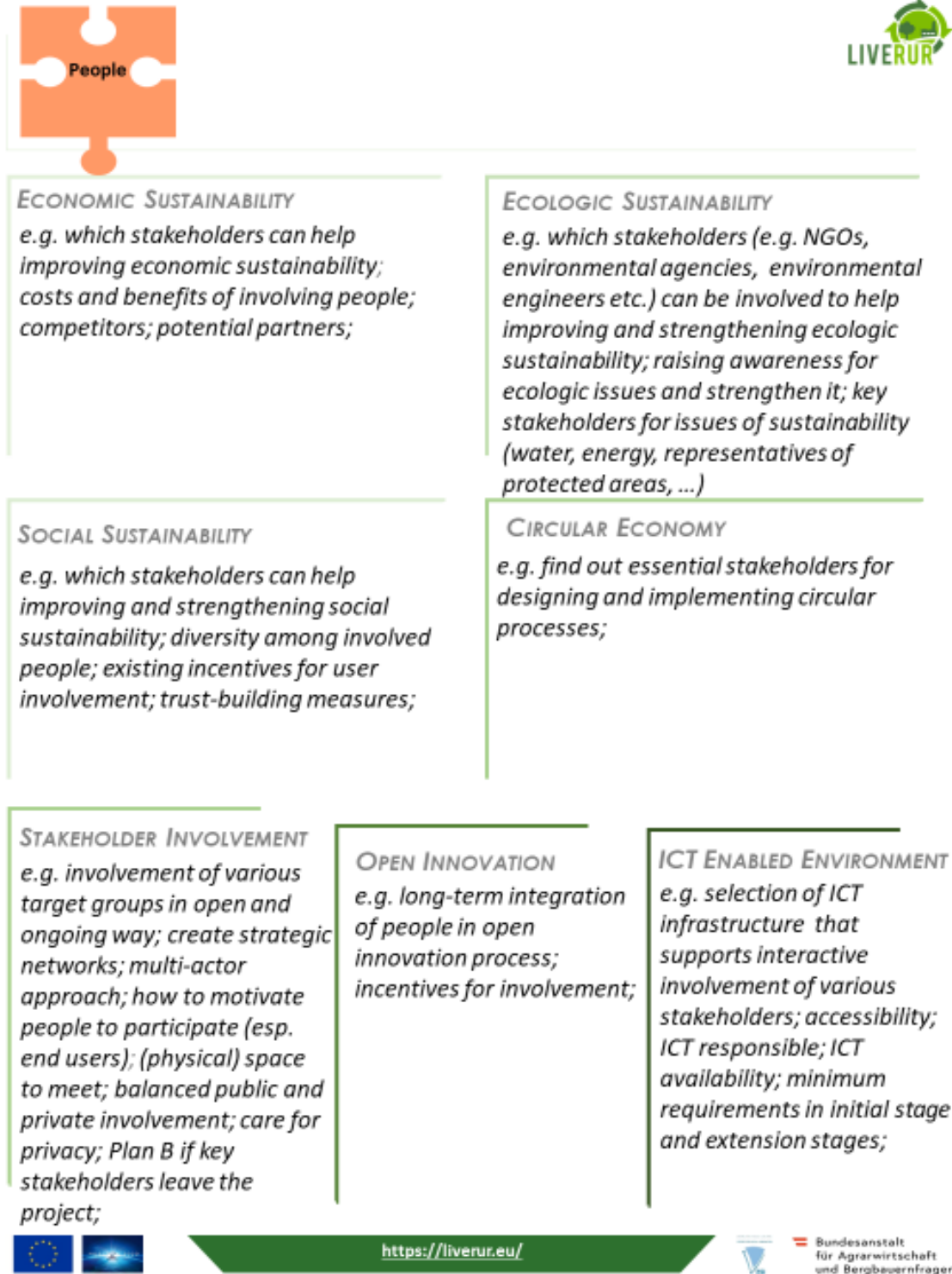


Figure 24: Worksheet RAIN Principle People with examples (own figure)



### V.4.3 Resources

#### 1. Definition

As outlined in the Business Model Canvas by Osterwalder and Pigneur (2010) key resources depend on the type of business and can comprise physical, financial, intellectual and human assets, mostly private but also public goods. They are to be considered not only for production and value proposition but also for their use for distribution channels, customer relationships and revenue streams etc.

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#### 2. Suggested Methods

It is important to get an overview about the essential resources, where and how to achieve them and potential alternatives. Techniques like Mindmapping, Flow Charts, Give and Take Matrix, the VRIO framework or specific SWOT- and Life Cycle Analysis seem appropriate.

**Simple method:** Mindmapping under this topic could mean graphic presentation of the main product or service in the centre and various necessary resources as sub-themes; see Silva and Ponte 2019.

**Advanced method:** Flow Charts can visualise the necessary resources, their relations and their quantities more detailed (Baumfeld et al. 2009).



### 3. Worksheet RAIN Principles

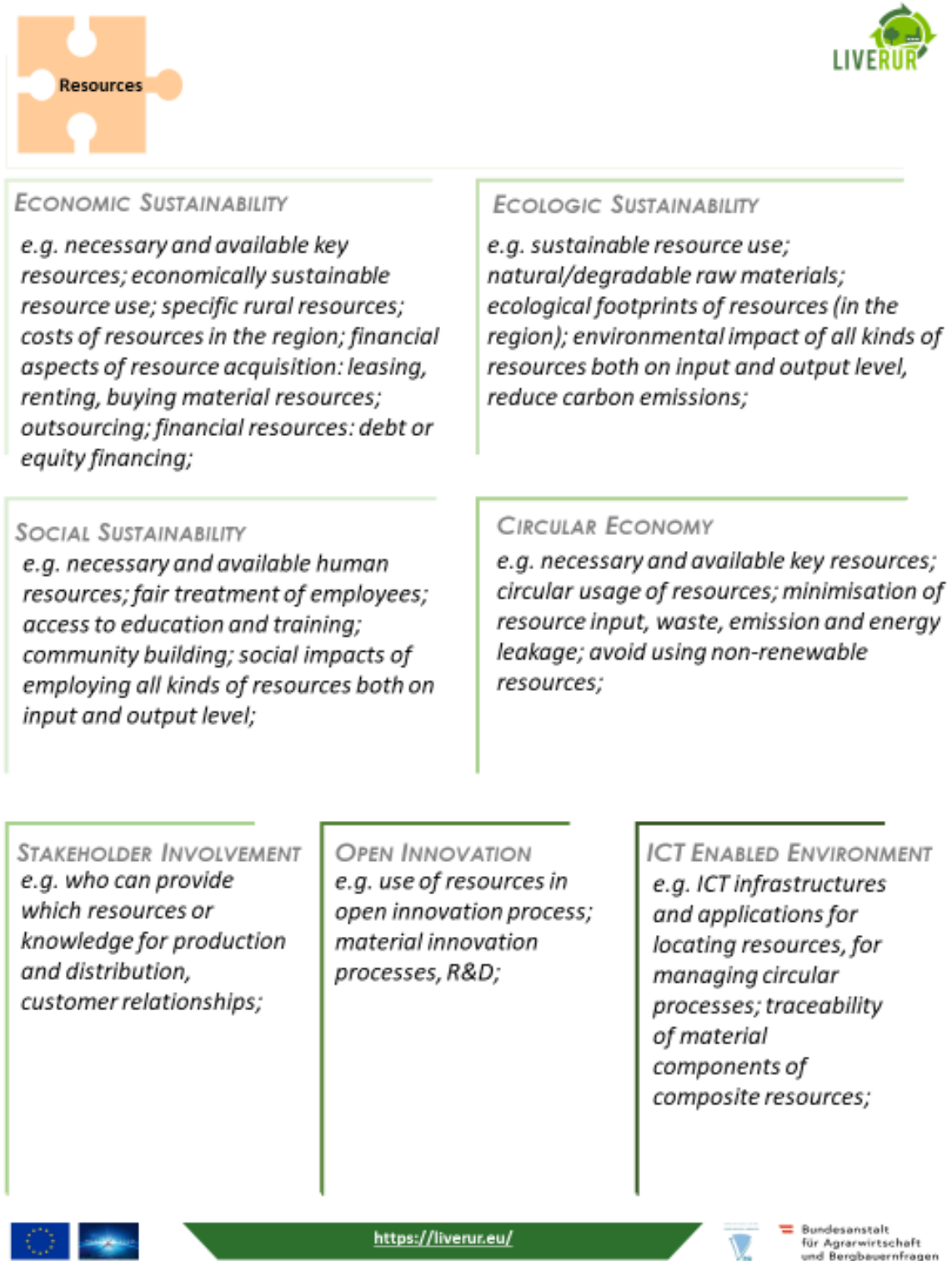


Figure 25: Worksheet RAIN Principle Resources with examples (own figure)



## V.4.4 Research / Innovation

### 1. Definition

The integration of research and innovation from the start of thinking about a business or initiative and as an ongoing process helps to strengthen resilience, sustainability and further development. The investments in research and innovation are stated as relevant benchmarking indicators (CESIE 2018 1, Cadiou 2019).

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### 2. Suggested Methods

Various methods are available to initiate and integrate research and innovation. They range from Discussion Groups or Mindmapping to specific developed methods like Continuous Innovation Framework, Innovation Flowchart, Innovation Scoring or Frugal Innovation.

**Simple method:** Mindmapping is used to work out a graphic presentation of the main product or service in the centre and various potentials of research and innovation as sub-themes; see Silva and Ponte 2019.

**Advanced method:** Innovation Flowchart explores potentials of innovation on various stages (e.g. opportunities, challenges, generating ideas, developing, delivering, scaling, changing) of a project and on various topics (e.g. required skills, activities and tools, risk levels, required finances) in a kind of matrix (Mulder et al. 2008).

### 3. Worksheet RAIN Principles

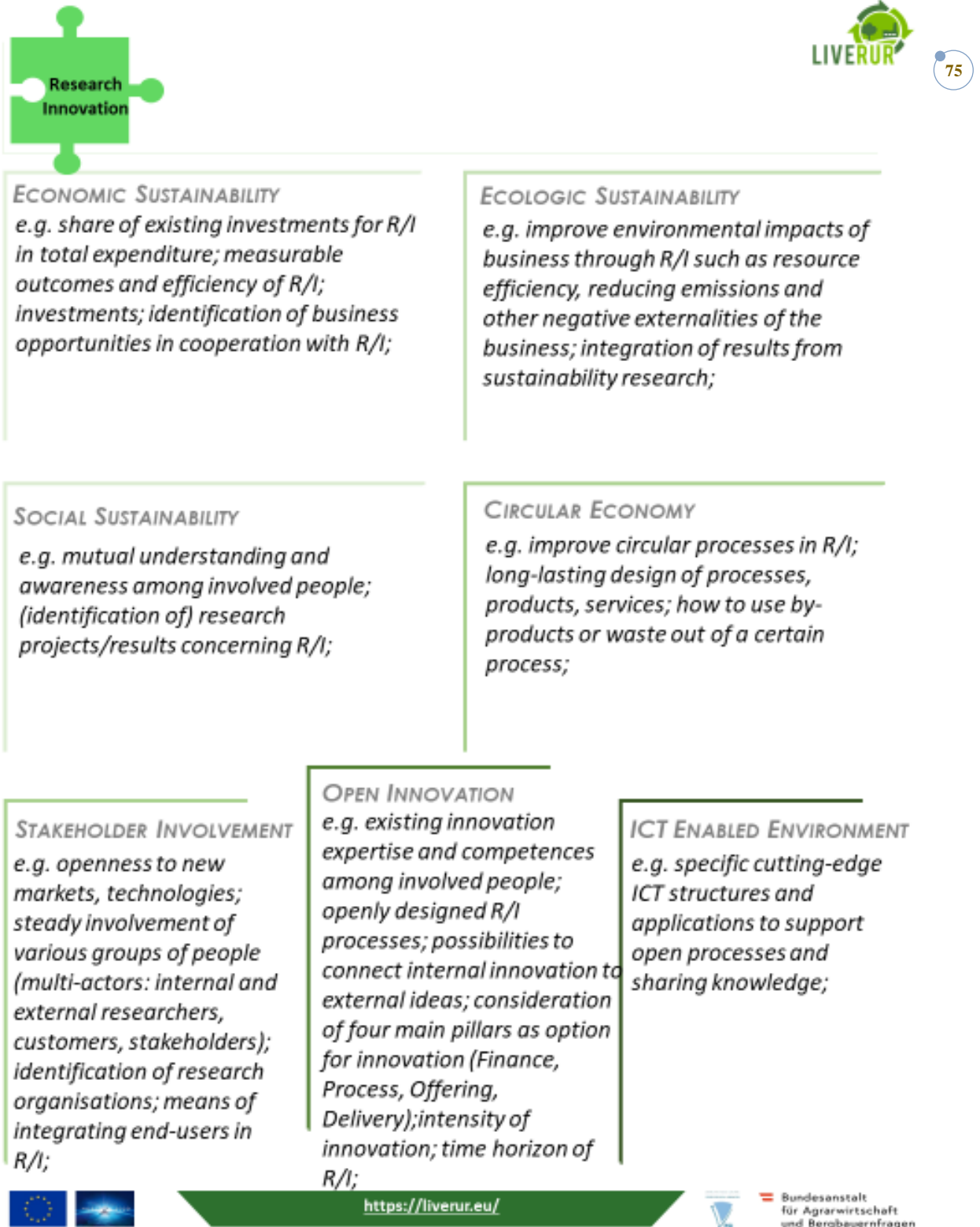


Figure 26: Worksheet RAIN Principle Research / Innovation with examples (own figure)



## V.4.5 Implementation / Development

### 1. Definition

For the implementation of a business or initiative, a concrete plan is needed which specifies time-lines, implementation targets, division of work and costs, description of risks (e.g. market risks, production risks, financing risks, strategic risks) and risk management measures. It also includes monitoring and evaluation to gain hints for improvements and further development (see Pöchtrager and Wagner, 2018).

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### 2. Suggested Methods

Besides general methods like Discussion Groups, Mindmapping etc. especially, Flowcharts, Causes and Gantt diagrams or Learning Loop and specific evaluation methods seem appropriate for this topic.

**Simple method:** Flowcharts can visualise implementation processes, various stages of implementation and evaluation needs and relationships between contributing factors (Baumfeld et al. 2009).

**Advanced method:** Evaluation methods (ex ante, ongoing or ex post) can give information about implementation processes and potential of further development or improvement (Baumfeld et al. 2009).



### 3. Worksheet RAIN Principles

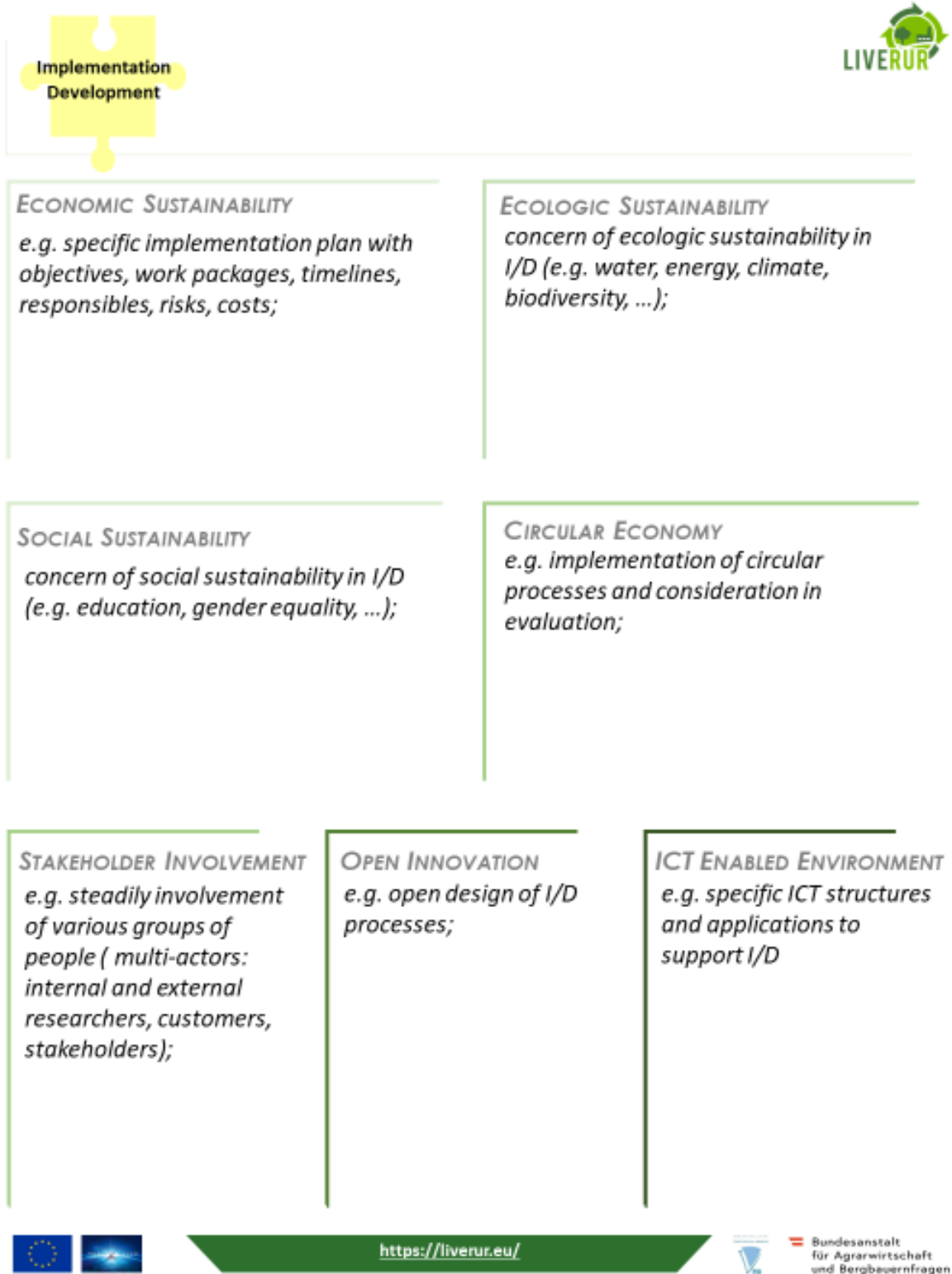


Figure 27: Worksheet RAIN Principle Implementation / Development with examples (own figure)



## V.4.6 Management / Organisation

### 1. Definition

The management and organisation of a business or initiative should give an overview about different business areas, personnel competences and planning, the legal form of the enterprise. With the size of a business, the organisational structures play an increasing role (see Pöchtrager and Wagner, 2018)

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### 2. Suggested Methods

The management and organisation of a project can be drafted and visualised via Organigrams or Matrices in various levels of details. Specific competence profile methods or the Persona Concept can support the informative value.

**Simple method:** Organigram can visualise the type and structure of the management and organisation of a project and -processes, various stages of implementation and evaluation needs and relationships between contributing factors (Pöchtrager and Wagner 2018).

**Advanced method:** Organigraph is an extended type of Organigram and shows better various types of relations in the organisational structure. It connects the various duties of an organisation. (Baumfeld et al. 2009).

### 3. Worksheet RAIN Principles



<p><b>ECONOMIC SUSTAINABILITY</b> <i>e.g. structures and forms of organisation, efficiency of structures; planned personnel;</i></p>	<p><b>ECOLOGIC SUSTAINABILITY</b> <i>e.g. install responsible for ecologic sustainability; create awareness among employees; concern of ecologic sustainability in M/O (such as energy, water, climate, biodiversity, ...);</i></p>	
<p><b>SOCIAL SUSTAINABILITY</b> <i>e.g. implementation of reflection, evaluation, learning processes; install responsible for CSR (corporate social responsibility); recognition and appreciation of activities for community-building among employees; diversity and gender equality in organisation structure;</i></p>	<p><b>CIRCULAR ECONOMY</b> <i>e.g. implementation of circular processes and consideration in evaluation;</i></p>	
<p><b>STAKEHOLDER INVOLVEMENT</b> <i>e.g. clarity about responsibilities, roles, representatives, deputies, coordination, voting processes; structures that involve various groups of people (multi-actors: internal and external researchers, customers, stakeholders); transparent processes; provision of periodic information;</i></p>	<p><b>OPEN INNOVATION</b> <i>e.g. design M/O processes for open innovation; create structures that care for continuous generation of new ideas;</i></p>	<p><b>ICT ENABLED ENVIRONMENT</b> <i>e.g. necessary ICT structures and applications to support modern and interactive M/O processes; agile project management;</i></p>

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Figure 28: Worksheet RAIN Principle Management / Organisation with examples (own figure)



## V.4.7 Financial Aspects

### 1. Definition

Financial aspects refer to matters such as costs and revenue structures, origin and use of funds, inflow and outflow of funds, profitability, liquidity, stability etc. Pöchtrager and Wagner (2018) describe different types of financial plans which should comprise a period of 5 years (including investment planning, sales planning, liquidity planning, profit and loss account, various other balance sheets. Besides traditional forms of internal and external financing, new ways of funding (e.g. crowd funding) should be taken into account. The Business Model Canvas (Osterwalder and Pigneur 2010) simply take costs and revenues into consideration, the extension of Ellen MacArthur Foundation (2016) includes also social and environmental costs and benefits. The FAO (Neven, 2014) listed as added values: salaries for workers, profits for entrepreneurs and owners, tax revenues; in addition and not directly to express in fiscal terms: the supply for consumers and net impacts on the environment.

80

### 2. Suggested Methods

The financial situation of the project should be clear at any time. The wide range of available methods and instruments includes cash accounts, balance sheets, profit and loss accounts, cash flow analysis, sales plans, investment plans, amortisation plans or cost accounting. Other approaches may take into consideration also efficiency criteria or non-monetary items like the cost-benefit analysis. Some of these methods and instruments report on what happened in the past. However, the tools designed to look at the future situation are better suited to address aspects such as: Will the business be able to pay its debts, to generate profits, to attract investment, to cope with risk? In addition, the legal requirements and guidelines of funding agencies have to be followed.

**Simple method:** Cost-Revenue Assessments can give first hints about the feasibility of a project (Pöchtrager and Wagner 2018).

**Advanced methods:** Cost-Benefit Analysis integrates also intangible values (<https://www.wallstreetmojo.com/cost-benefit-analysis-examples/>), Liquidity Planning to ensure the business' solvency (Pöchtrager and Wagner 2018).



### 3. Worksheet RAIN Principles

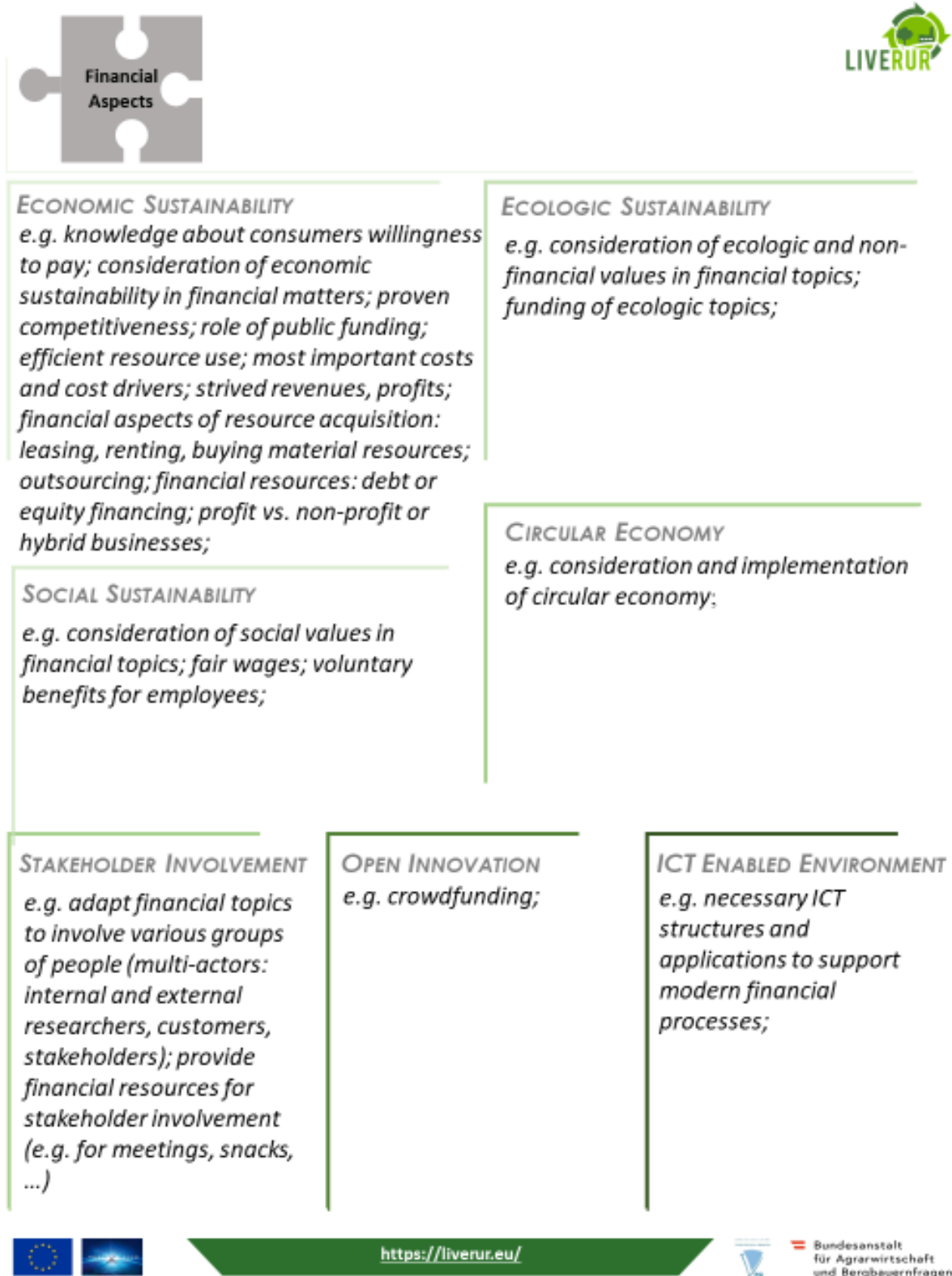


Figure 29: Worksheet RAIN Principle Financial aspects with examples (own figure)



## V.4.8 Product / Service / Process

### 1. Definition

The product or service or – as recent development – the product as a service and the process behind it is in the centre of the awareness of consumers and the general public. Orientation in recent businesses is more on providing consumers' access to value rather than ownership (Jørgensen and Pedersen, 2018). Pöchtrager and Wagner (2018) stress that the quality of a product has to be defined from the perspective of the users. The unique selling proposition (higher benefit, more effective communication or better value for money than its competitors) is important. The whole value chain from material purchasing to customer services has to be reconsidered. The process behind it is the combination of facilities, skills and technologies and has additional outputs to the final product or service. The business model Canvas (Osterwalder and Pigneur 2010) mentions four important questions for value propositions: (I) what value to deliver, (II) which of our customers problems are we helping, (III) which customer needs to satisfy, (IV) what bundles of products and services for each customer segment. In addition (Cadiou, 2018) the adaptation to changing environment, climate and consumer expectation trends, innovative value proposition, social and economic benefits for communities, food safety and health issues and services for ageing population gain importance.

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### 2. Suggested Methods

A lot of methods to get clear about a proposed product or service (and the process to achieve it) are thinkable. Beginning with Brainstorming, Brainwriting, Mindmapping etc. to Empathy Map, Problem-Solution Fit, Creative Problem Solving, Three Types of Knowledge Tool, Value Proposition Canvas up to Unique Selling Proposition- or Competitive- and Life Cycle Analysis.

**Simple method:** Problem Solution Fit (provides a scheme start with a problem and customer needs and ending with a product or service as solution of it, Silva and Ponte 2019)

**Advanced method:** Competitive Analysis (Bocken et al. 2013) compares competitive products along a number of key dimensions.

### 3. Worksheet RAIN Principles

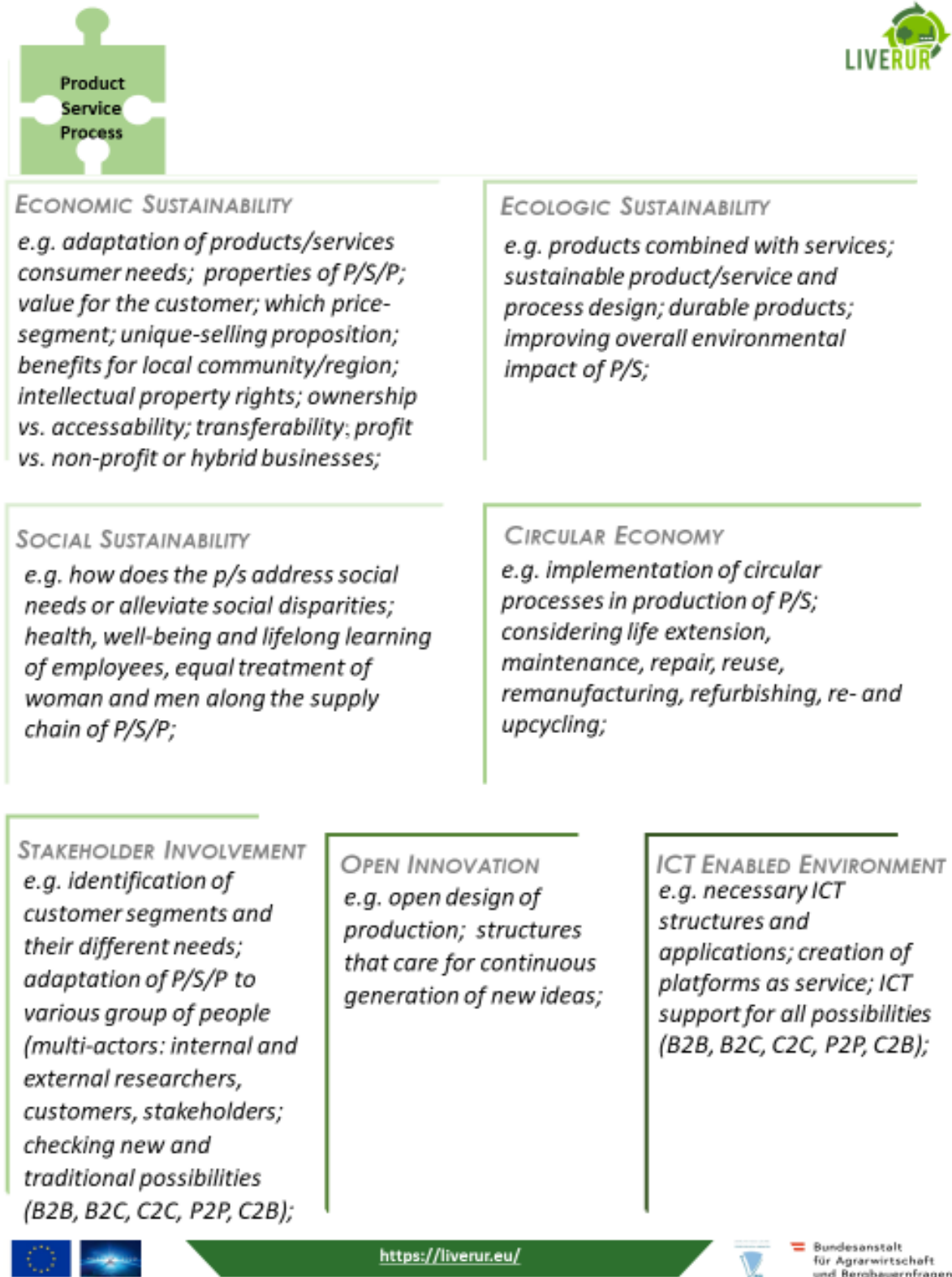


Figure 30: Worksheet RAIN Principle Product / Service / Process with examples (own figure)



## V.4.9 Marketing / Distribution

### 1. Definition

Not only the product itself but also its design, packaging and image determine success or failure. Due to Pöchtrager and Wagner (2018), according to McCarthy (1960) the marketing mix of 4 policies (product-, price-, distribution-, communication policy) and in addition the human resources policy has to be drafted and analysed. In their Business Model Canvas Osterwalder and Pigneur (2010) call the topic “channels” which means to consider the delivery of values to the customer (through which channels do the customer segments wanted to be reached; how are the channels integrated, which channels work best and cost efficient). New criteria (Cadiou, 2018) are e-commerce, multi-value chain, short and local channel development, integration into competitive value chains.

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### 2. Suggested Methods

Strategies for marketing and distribution can be drafted via various methods. A more or less intensive Market or Sector Analysis is the basis for it. The Marketing Mix method integrates all essential topics and various creative methods can be applied to consider all possibilities. Mind-maps, Flowcharts, Action catalogue, Distribution Strategy Planning can help to clarify the needs of marketing and distribution.

**Simple method: Mindmapping** with the product or service in the center and various users as subthemes can give first ideas about marketing and distribution (Silva and Ponte 2019).

**Advanced method:** Distribution Strategy Planning structures the strategy and dives into details of analysis (Pöchtrager und Wagner, 2018).

### 3. Worksheet RAIN Principles

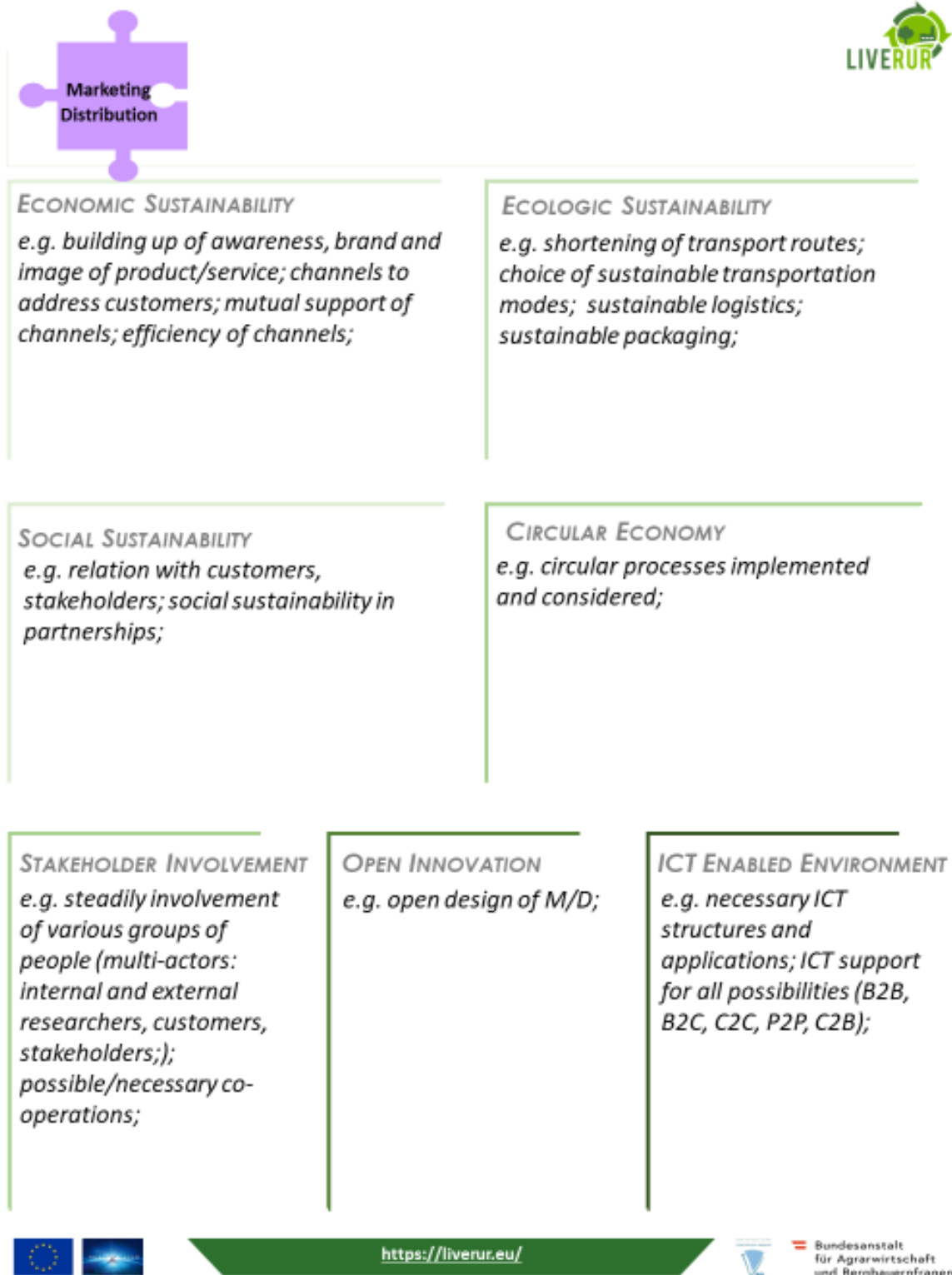


Figure 31: Worksheet RAIN Principle Marketing / Distribution with examples (own figure)



## V.5 Using RAIN: illustrative examples

### V.5.1 Structure of a business plan on the basis of the RAIN Concept

The grey box below gives an example for the structure of a business plan on the basis of the RAIN Concept. The following chapter V.5.2 elaborates the application of the RAIN Core Element Product / Service / Process in using a fictitious business project.

Executive Summary

Introduction

Personal Data and Background

RAIN Real Life Setting

RAIN Core Elements

1. Vision/Business Idea

- 1.1. Status Quo
- 1.2. Goals (What? When? How?)
- 1.3. RAIN Principles
- 1.4. Measures
- 1.5. Responsibilities and Timelines
- 1.6. Evaluation, Rethink

2. People (Partners, Customers, Stakeholders)

- 2.1. Status Quo
- 2.2. Goals (What? When? How?)
- 2.3. RAIN Principles
- 2.4. Measures
- 2.5. Responsibilities and Timelines
- 2.6. Evaluation, Rethink

3. Resources

- 3.1. Status Quo
- 3.2. Goals (What? When? How?)
- 3.3. RAIN Principles
- 3.4. Measures
- 3.5. Responsibilities and Timelines
- 3.6. Evaluation, Rethink



#### 4. Research / Innovation

- 4.1. Status Quo
- 4.2. Goals (What? When? How?)
- 4.3. RAIN Principles
- 4.4. Measures
- 4.5. Responsibilities and Timelines
- 4.6. Evaluation, Rethink

#### 5. Implementation / Development

- 5.1. Status Quo
- 5.2. Goals (What? When? How?)
- 5.3. RAIN Principles
- 5.4. Measures
- 5.5. Responsibilities and Timelines
- 5.6. Evaluation, Rethink

#### 6. Management / Organisation

- 6.1. Status Quo
- 6.2. Goals (What? When? How?)
- 6.3. RAIN Principles
- 6.4. Measures
- 6.5. Responsibilities and Timelines
- 6.6. Evaluation, Rethink

#### 7. Financial Aspects

- 7.1. Status Quo
- 7.2. Goals (What? When? How?)
- 7.3. RAIN Principles
- 7.4. Measures
- 7.5. Responsibilities and Timelines
- 7.6. Evaluation, Rethink

#### 8. Product / Service / Process

- 8.1. Status Quo
- 8.2. Goals (What? When? How?)
- 8.3. RAIN Principles
- 8.4. Measures
- 8.5. Responsibilities and Timelines
- 8.6. Evaluation, Rethink

#### 9. Marketing / Distribution

- 9.1. Status Quo
- 9.2. Goals (What? When? How?)
- 9.3. RAIN Principles
- 9.4. Measures
- 9.5. Responsibilities and Timelines
- 9.6. Evaluation, Rethink



### V.5.2 RAIN Core Element Product / Service / Process: elaboration on a business project

To make the application of the RAIN concept more tangible, we used and amended a fictitious business project in Pöchtrager and Wagner (2018) and elaborated the **RAIN Core Element Product / Service / Process** (Table 13). The underlying business idea of the business model we used is the **construction of a district heating system with an additional grain drying system**.

Table 13: Prefilled example for RAIN Core Element Product / Service / Process (Pöchtrager und Wagner (2018); adapted and supplemented by BAB)

<p><b>8.1 Status Quo</b></p>	<p>In the project region, existing heating systems soon will need to be renewed. A district heating system fed by renewable and regional resources, which is linked to an additional grain drying system, seems to be a sustainable option. A new company (Ltd.) will be founded to construct and run the power plants and its main area of work will be the provision of heat supply linked with a grain drying system.</p>
<p><b>8.2 Goals (What? When? How?)</b></p>	<p>What?</p> <ul style="list-style-type: none"> <li>➤ What are the products and/or services you will be providing: <ul style="list-style-type: none"> <li>• Provision of district heating for 200+ households in the region and the local community buildings (school, kindergarden) based on regional wood chips;</li> <li>• Grain drying system for farmers to increase capacity utilisation of direct heating in summer</li> <li>• Generation of electricity from own photovoltaic plant</li> </ul> </li> <li>➤ What are the needs, problems of the customers you are going to solve, what are the benefits for the customers? <ul style="list-style-type: none"> <li>• District heat customers do not need to invest themselves into a new heating system and save space since they do not need a heating room</li> <li>• Customers may benefit from regional energy self-sufficiency</li> <li>• Farmers and other providers can market their wood chips regionally</li> <li>• Farmers can heat their grain faster and are independent of weather conditions</li> </ul> </li> </ul> <p>How?</p> <ul style="list-style-type: none"> <li>• Purchase of regional wood chips for the direct heat power plant from farmers and other providers of regional wood chips; delivery contracts, means of delivery and storage of the wood chips need to be considered</li> </ul>



	<ul style="list-style-type: none"> <li>• Direct heat will be produced in the district heating plant and reaches the end users via a district heating grid</li> <li>• Electricity from own photovoltaic plant will be placed on the roof of the district heating plant and will be mostly used for in-house electricity consumption, the surplus (about 50%) will be fed and sold back into the public electricity grid</li> <li>• Grain drying system for farmers to increase capacity utilisation of direct heating in summer</li> </ul> <p>When?</p> <ul style="list-style-type: none"> <li>• The district heating system will be put into operation in xxxx.</li> <li>• The photovoltaic plant will be put into operation in xxxx.</li> <li>• The grain drying system will be put into operation in xxxx.</li> </ul>
<b>8.3 RAIN Principles</b>	
<b>Ecologic Sustainability</b>	<ul style="list-style-type: none"> <li>• Generation and use of sustainable, renewable, climate-friendly and regional energy resources;</li> <li>• Short value chains mean shorter transportation routes;</li> <li>• Traceable forest resources since they come from the region;</li> <li>• This form of grain drying is more resource-efficient than former means relying on fossil fuels or plants that are further away.</li> </ul>
<b>Economic Sustainability</b>	<ul style="list-style-type: none"> <li>• A district heating system represents a cost-effective type of energy supply;</li> <li>• Effective use of heat in seasons where less heating is required (by grain drying plant);</li> <li>• The potential customers will sign contracts for a period of 15 years;</li> <li>• High quality grain (due to drying process) may yield higher prices;</li> <li>• Farmers benefit from drying their grain more cost-effectively compared to competitors or self drying;</li> <li>• Wood delivery from regional farmers and other regional providers increases regional value creation.</li> </ul>
<b>Social Sustainability</b>	<ul style="list-style-type: none"> <li>• Creation of part time jobs for the three founders and business partners of the project;</li> <li>• One additional part time job position in the region is created (hired via machinery ring organisations).</li> </ul>
<b>Circular Economy</b>	<ul style="list-style-type: none"> <li>• Industrial wood chips are the heating material for the district heating system – in this way an inferior by-</li> </ul>

	product of forestry is refined and the regional renewable energy source wood is more efficiently used.
<b>Open Innovation</b>	<ul style="list-style-type: none"> <li>• Involvement of research institutions engaged in renewable energy research to improve process efficiency;</li> <li>• Use open data to better tailor energy and heat demand.</li> </ul>
<b>Stakeholder Involvement / Openness</b>	<ul style="list-style-type: none"> <li>• Direct contact with and involvement of the residents and farmers of the area who are potential consumers (end-users) to explore the energy demand curves and potential other needs;</li> <li>• Involvement of organic certification company to consider requirements for organic grain storage;</li> <li>• Involvement of farmers in the conception of the grain drying plant to meet their needs;</li> <li>• Round tables with all involved people to create new ideas for application.</li> </ul>
<b>ICT enabled environment</b>	<ul style="list-style-type: none"> <li>• Electronic allocation of grain drying boxes farmers;</li> <li>• Smart system to control and steer input/output, supply/demand in amounts and time.</li> </ul>
<b>8.4 Measures (M)</b>	<p>M1: Open discussion with stakeholders about demands, needs, potential products/services;</p> <p>M2: Conduct feasibility study;</p> <p>M3: Decision making process about kind of product/service, potential amounts and timelines;</p> <p>M4: Decision about product/service to be implemented.</p>
<b>8.5 Responsibilities and Timelines</b>	<p>M1: Partner A organises, to do until xxxx;</p> <p>M2: Partner A organises, consortium decides about engagement until xxxx;</p> <p>M3: Partner B organises stakeholder discussion until xxxx;</p> <p>M4: Consortium decision until xxxx.</p>
<b>8.6 Evaluation and Rethink</b>	Drafting an evaluation plan with topics (e.g. does the product/service meet the demand? Does the supply occur at the right time? Are adaptations necessary? Are there any other new products/services?) and timetable.



## CONCLUSION

Based on literature research, LIVERUR deliverables and partner discussions within task 4.3 the RAIN (Regional Circular Living Lab business model) Concept has been drafted. It comprises all topics of a contemporary business model and the additional demands stated in the LIVERUR project. The three-layered structure (RAIN Core Elements, RAIN Principles and RAIN Real Life Setting) supports the integration of Living Lab-, Circular Economy- and multi-actor approaches as well as open innovation, ecologic, economic and social sustainability and innovative ICT solutions. The situation outside the business model and its interdependencies with the business model are integrated by means of the RAIN Real Life Setting layer.

With this structure and with the guidance on concrete tasks and working steps – elaborated and provided for potential operators – the RAIN Concept supports an integrative, holistic and inclusive way of thinking in the course of developing a project or an activity. It should assist in developing a business that integrates all concepts promoted by LIVERUR: business models, rural Circular Economy and Living Lab approach.



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## ANNEX 1 Worksheet RAIN Real Life Setting

### Worksheet Real Life Setting



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<p><u>ECONOMIC CONTEXT</u></p>	<p><u>ENVIRONMENT AND CLIMATE</u></p>
<p><u>SOCIETAL CONTEXT AND SOCIAL INFRASTRUCTURE</u></p>	<p><u>POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK</u></p>
<p><u>RURAL TECHNICAL INFRASTRUCTURE</u></p>	<p><u>FOOD SECURITY AND SAFETY</u></p>



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## ANNEX 2 Worksheets RAIN Principles

### A2/1 Vision / Business Idea



### Worksheet RAIN Principles

The vision and business idea due to who cite Sinek (2011) at first asks "Why? - Why do we do, what we do?" and it is the customers' benefits that has to be in the focus of a business plan. The vision creation has to be based on needs and demands and should start with a process to win ideas, rate and select ideas and elaborate rough concepts.



*ECONOMIC SUSTAINABILITY*

*ECOLOGIC SUSTAINABILITY*

*SOCIAL SUSTAINABILITY*

*CIRCULAR ECONOMY*

*STAKEHOLDER INVOLVEMENT*

*OPEN INNOVATION*

*ICT ENABLED ENVIRONMENT*



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## A2/2 People (Partners, Customers, Stakeholders)



### Worksheet RAIN Principles

All involved and affected people and groups of people should be pointed out clearly and integrated. Their relationship, type of involvement and strength of (positive or negative) influence should be mapped.



ECONOMIC SUSTAINABILITY

ECOLOGIC SUSTAINABILITY

SOCIAL SUSTAINABILITY

CIRCULAR ECONOMY

STAKEHOLDER INVOLVEMENT

OPEN INNOVATION

ICT ENABLED ENVIRONMENT



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## A2/3 Resources



Resources

### Worksheet RAIN Principles

Each business has individual resource requirements which can comprise physical, financial, intellectual and human resources; mostly private, but also public ones. They are to be considered in every part of the business, incl. procurement, production and services, marketing and distribution, finance, organisation and management, research and innovation, implementation and development etc.



ECONOMIC SUSTAINABILITY

ECOLOGIC SUSTAINABILITY

SOCIAL SUSTAINABILITY

CIRCULAR ECONOMY

STAKEHOLDER INVOLVEMENT

OPEN INNOVATION

ICT ENABLED ENVIRONMENT



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A2/4 Research / Innovation



### Worksheet RAIN Principles

The integration of research and innovation already from the start of thinking and as an ongoing process is not common yet but helps to strengthen resilience, sustainability and further development.



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*ECONOMIC SUSTAINABILITY*

*ECOLOGIC SUSTAINABILITY*

*SOCIAL SUSTAINABILITY*

*CIRCULAR ECONOMY*

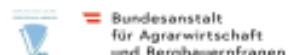
*STAKEHOLDER INVOLVEMENT*

*OPEN INNOVATION*

*ICT ENABLED ENVIRONMENT*



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## A2/5 Implementation / Development

**Implementation  
Development**

### Worksheet RAIN Principles

Considerations of implementation need a concrete plan including timelines, implementation targets, division of work and costs, description of risks. It also has to include monitoring and evaluation to gain hints for improvements and further development (see Pöchtrager and Wagner, 2018).



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*ECONOMIC SUSTAINABILITY*

*ECOLOGIC SUSTAINABILITY*

*SOCIAL SUSTAINABILITY*

*CIRCULAR ECONOMY*

*STAKEHOLDER INVOLVEMENT*

*OPEN INNOVATION*

*ICT ENABLED ENVIRONMENT*



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## A2/6 Management / Organisation



### Worksheet RAIN Principles

The management and organisation should give an overview about different business areas, personnel competences and planning, the legal form of the enterprise. With the size of a business the organisational structures play an increasing role (see Pöchtrager and Wagner, 2018)



*ECONOMIC SUSTAINABILITY*

*ECOLOGIC SUSTAINABILITY*

*SOCIAL SUSTAINABILITY*

*CIRCULAR ECONOMY*

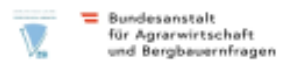
*STAKEHOLDER INVOLVEMENT*

*OPEN INNOVATION*

*ICT ENABLED ENVIRONMENT*



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## A2/7 Financial aspects



### Worksheet RAIN Principles

To consider precisely the whole aspects of costs and revenue structures are crucial for a business or initiative. There is a whole range of financial plans which should comprise a period of 5 years, ideally on a monthly basis (costs, revenues, investment planning, sales planning, liquidity planning, profit and loss account, various other balance sheets). New ways of funding (e.g. crowd funding), also social and environmental cost and benefits should be considered.



#### ECONOMIC SUSTAINABILITY

#### ECOLOGIC SUSTAINABILITY

#### SOCIAL SUSTAINABILITY

#### CIRCULAR ECONOMY

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## A2/8 Product / Service / Process



### Worksheet RAIN Principles

The benefits created for the customers, the "problems" solved, the wishes satisfied, the customer segments to be addressed and the unique selling proposition are of interest here (Osterwalder & Pigneur, 2010, Pöchtrager & Wagner, 2018). The whole value chain from material purchasing to customer services has to be considered. Business models that offer products as a service (user rights to products/services) in contrast to mere ownership have gained in importance (Jørgensen & Pedersen, 2018).



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## A2/9 Marketing / Distribution

### Worksheet RAIN Principles

Marketing  
Distribution

Design, packaging and image determine success or failure. The marketing mix consists of 4 policies: product-, price-, distribution- and communication policy. Additionally, the human resources policy has to be drafted and analyzed (Pöchtrager and Wagner, 2018).



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*ECONOMIC SUSTAINABILITY*

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### ANNEX 3 References to the RAIN Layers

RAIN Core Elements
Management Summary (III.1.1)
Business Idea, -model (III.1.2), Ideas (III.5), Needs and demand (III.5), Relationship with Suppliers, local (IV.1), Key Partners (III.2.2, IV.1), Key Activities (III.2.2, IV.1), New Markets (IV.2), Physical Inputs (III.6), Financial Services and Non-Financial Services (III.6)
Key Resources (III.2.2, IV.1), Raw Materials (IV.1), Physical Inputs (III.6), Financial Services and Non-Financial Services (III.6)
Product and Service (III.1.4) (e.g. Water, Food, Technology, II), Value Proposition (III.2.2, IV.1), High Quality (III.6), Food Safety (III.6)
Marketing and Distribution (II, III.1.5), Channels (III.2.2, IV.1), Multi Channels (III.6), E-Commerce (III.6)
Investments in Innovation and Research (IV.1)
Business and Management (III.1.6)
Customers, Customers Segments (III.2.2, IV.1), Relationships with Clients, local, regional, national (IV.1), User centred approach (IV.3, III.5)
Finance and Profitability (III.1.8), Revenue (III.2.2, IV.1), Costs (III.2.2), Efficiency (III.6), Capital (III.6)
Implementation (III.1.9)
RAIN Principles
PPPP, Customer Relationship (III.2.2), Relation with Administration (IV.1), Stakeholder segments (IV.2), Multi Actor Approach (IV.3), Engagement, Participation (IV.3), Real Life Setting (IV.3, III.5), End-market driven (III.6), Multilateral (III.6), User-centered (III.5)
ICT infrastructure (IV.2), Integration of Digital Technology (IV.1), Digital Performance (IV.1), Technological Integration (IV.3), Innovation (IV.3)
Circular Economy Aspects (IV.2), Key Activities (III.2.4), Waste Water reduction (II), Life Cycle Analysis (II), Environmental Footprints (IV.2), Waste Management (III.6), From design to recycling (III.5), Create value from 'waste' (III.4)
Open Innovation (II, III.5), Investments in Innovation and Research (IV.1, III.5), Number of Improved Products/Services (IV.1), Lifetime of Products Services (IV.1), Innovation outcomes (IV.2), Openness (IV.3), Innovation (III.6), Vision driven (III.6), Experimental environment (III.5), Evaluation of innovative ideas (III.5)



Contribution to newly developed transport services, logistics (IV.1)
Social Cohesion (II), Social Sustainability (III.6)
Resource Efficacy (II), Energy efficiency (IV.1) Water Consumption (IV.1), Renewable Energy (IV.1, IV.3), Resources (IV.3), Climate action and Biodiversity (IV.3), Environmentally Sustainable (III.6), Efficiency (III.5), Encourage sufficiency (III.4)
Resilience (II), Regional Conditions (IV.3), Products/Material Regeneration (IV.3), Responsible Production and Consumption (IV.3), Product life cycle (III.5)
Job creation (II), Green Jobs in Local Economy (IV.1), Local Personnel (IV.1)
Gender Equality (IV.1), Health and Wellbeing (IV.3), Health, Wellness (III.6), Quality Education and Learning (IV.3), Social Equity (IV.3), Integration (III.5)
Culture (IV.3)
Interdisciplinary (III.5), Co-creation (III.5)
<b>RAIN Real Life Setting</b>
Environmental properties (II, III.1.3, III.2.4, III.6, IV.1)
Market and competition (II, III.1.3), Market Volatility (III.6); Trade Relations (III.6)
Technical Infrastructure (IV.1, IV.2)
Social Infrastructure (IV.1, IV.2)
Legal Regulations, laws (III.1.7); Governance (III.6), Policy (III.5)
Globalisation (III.6)
Other diverse Opportunities and Threats (e.g. III.1.7...)
Food Security, Safety (III.6)
Regional/rural context (III.5)



## ANNEX 4 Collection of Methods

Methods for potential use in RAIN application		
1: Relatively easy to implement co-creative methods		
2: Co-creative methods or simple analysis which need a specific effort for preparation and implementation		
3: Specific analysis, a certain effort and detailed technical knowledge is necessary		
Category	Name	Reference
1	Brain-storming	HarmoniCOP Team. 2005. Learning Together to Manage Together. Project Harmonising Collaborative Planning. University of Osnabrück
		Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
		Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
1	Brain-writing	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
1	Bristol Approach	Malmberg, K., Vattinen, I. (eds.) Living Lab Methodology Handbook, U4IoT, [retrieved from: <a href="https://enoll.org/publications-list/living-lab-methodologies/">https://enoll.org/publications-list/living-lab-methodologies/</a> 11.7.2019]
1	Cambridge Value Mapping Tool	Bocken et al. (2013) [retrieved from: <a href="https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/">https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/</a> ]
1	Change Agenda	ClearPoint Strategy. Strategy Execution Toolkit. [retrieved from: <a href="https://www.clearpointstrategy.com">https://www.clearpointstrategy.com</a> 9.7.2019]
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1	Empathy Map	Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, New Jersey: John Wiley & Sons Inc.
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1	Give and Take Matrix	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing_knowledge/methods/td-net_toolbox">https://naturalsciences.ch/topics/co-producing_knowledge/methods/td-net_toolbox</a> 16.7.2019]
1	Group Discussion	<a href="https://www.mbauniverse.com/group-discussion/tips">https://www.mbauniverse.com/group-discussion/tips</a>
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1: Relatively easy to implement co-creative methods		
2: Co-creative methods or simple analysis which need a specific effort for preparation and implementation		
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Category	Name	Reference
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1	Visual thinking	Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, New Jersey: John Wiley & Sons Inc.
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Category	Name	Reference
	on the Business Model Canvas	
2	Canvas - Lean Canvas	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
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2	Canvas - The business cycle canvas	Mentink, B. 2014. Circular Business Model Innovation: A Process Framework and a Tool for Business Model Innovation in a Circular Economy. Master of Science in Industrial Ecology Thesis, Delft, University of Technology & Leiden University.
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1: Relatively easy to implement co-creative methods		
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Category	Name	Reference
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2	Flowchart	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Focus Group	HarmoniCOP Team. 2005. Learning Together to Manage Together. Project Harmonising Collaborative Planning. University of Osnabrück
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2	Knowledge Management	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Knowledge Mapping	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Learning Loop	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
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2	Morphological analysis, relevance trees	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]



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1: Relatively easy to implement co-creative methods		
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Category	Name	Reference
2	Most significant change	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox">https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox</a> 2019 07 16]
2	Multi Disciplinary Development Groups	Schaffers et al.2010. Living Labs for Rural Development. Results from the C@R Integrated Project. [retrieved from: <a href="http://www.c-rural.eu">www.c-rural.eu</a> 5.2.2019]
2	Network Analysis	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Networking Synergies Creation	Schaffers et al.2010. Living Labs for Rural Development. Results from the C@R Integrated Project. [retrieved from: <a href="http://www.c-rural.eu">www.c-rural.eu</a> 5.2.2019]
2	Nomadic concepts	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox">https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox</a> 2019 07 16]
2	Organigraph	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Organisation Profile	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
2	Outcome spaces framework	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox">https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox</a> 2019 07 16]
2	People & Connections Map	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo">https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo</a> 12.7.2019]
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2	Personas	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo">https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo</a> 12.7.2019]
2	PEST Analysis	Bocken et al. (2013) ( <a href="https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/">https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/</a> )
2	PESTEL analysis	Strategic management insight - SWOT analysis [Retrieved from: <a href="https://www.strategicmanagementinsight.com/tools/pest-pestel-analysis.html">https://www.strategicmanagementinsight.com/tools/pest-pestel-analysis.html</a> 17.7.2018]
2	Porter's five forces analysis	Michael E. Porter: Competitive Strategy: Techniques for analyzing industries and competitors: with a new introduction. Free Press, New York 1980, ISBN 0-684-84148-7
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		Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo">https://issuu.com/fundodemaneio/docs/liverur-toolbox-v3-demo</a> 12.7.2019]
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2	Reframing Workshop	HarmoniCOP Team. 2005. Learning Together to Manage Together. Project Harmonising Collaborative Planning. University of Osnabrück
2	Repertory Grid Method	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
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Category	Name	Reference
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2	S&T roadmaping	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
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2	SCAMPER	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
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		HarmoniCOP Team. 2005. Learning Together to Manage Together. Project Harmonising Collaborative Planning. University of Osnabrück
2	Scenario integration	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox">https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox</a> 2019 07 16]
2	Scenario Technique	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Scenarios	Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, New Jersey: John Wiley & Sons Inc.
2	Scoping (9 phases, 28 questions)	Nauheimer, H. 1997. The Change management Toolkit. [retrieved from: <a href="https://www.change-management-toolbook.com/">https://www.change-management-toolbook.com/</a> 2019 07 16]
2	SEPO Window	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Serious Game	Cadiou, F. 2019. Living Lab research concept in rural areas – Deliverable 2.4 Report on creation of a benchmarking study. [retrieved from: <a href="https://liverur.eu/phase-01/">https://liverur.eu/phase-01/</a> 20.2.2019]
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2	Solutions Focus (SIMPLE)	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Spatial Mental models and maps	HarmoniCOP Team. 2005. Learning Together to Manage Together. Project Harmonising Collaborative Planning. University of Osnabrück
2	Stage Managing	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Stakeholder Analysis	Neuwirth, J., Wagner, K., 2009. Nature Parks as Planning Objects within Integrated Regional Development. Agrarpolitischer Arbeitsbehef 29. Bundesanstalt für Agrarwirtschaft. Wien
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2	Stakeholder Mapping - Influence and interest matrix	GAIA. Toolkits for Transdisciplinarity [retrieved from: <a href="https://www.oekom.de/fileadmin/zeitschriften/gaia_Grafiken/GAIA_Flyer_Toolkits.pdf">https://www.oekom.de/fileadmin/zeitschriften/gaia_Grafiken/GAIA_Flyer_Toolkits.pdf</a> 2019 07 16]
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2	Story wall (story based)	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox">https://naturalsciences.ch/topics/co-producing-knowledge/methods/td-net-toolbox</a> 2019 07 16]



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	for assembling crucial events)	
2	Storytelling	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, New Jersey: John Wiley & Sons Inc.
2	Strategic Portfolios	Consulting Group. Change Magazin 1/2016. Integrated Graz <a href="http://www.integratedconsulting.at">www.integratedconsulting.at</a>
2	Success-factor Analysis	Neuwirth, J., Wagner, K., 2009. Nature Parks as Planning Objects within Integrated Regional Development. Agrarpolitischer Arbeitsbehelf 29. Bundesanstalt für Agrarwirtschaft. Wien
2	Sustainable business model archetypes	Bocken et al. 2014
2	SWOT Analysis	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.irc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.irc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018] Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, New Jersey: John Wiley & Sons Inc. Bocken et al. (2013) ( <a href="https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/">https://www.ifm.eng.cam.ac.uk/news/the-cambridge-value-mapping-tool/</a> ) Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden. Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
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2	Team Syntegrity	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
2	Techology Readiness Level	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
2	Theory of Change	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
2	Unique Selling Proposition Analysis	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
2	User and Actor Engagement	Schaffers et al.2010. Living Labs for Rural Development. Results from the C@R Integrated Project. [retrieved from: <a href="http://www.c-rural.eu">www.c-rural.eu</a> 5.2.2019]
2	Value chain analysis	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
2	Value Mapping	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
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Category	Name	Reference
2	Value Proposition Canvas	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
2	Venn diagram tool	TD-net toolbox. Sciences Switzerland [retrieved from: <a href="https://naturalsciences.ch/topics/co-producing_knowledge/methods/td-net_toolbox">https://naturalsciences.ch/topics/co-producing_knowledge/methods/td-net_toolbox</a> 2019 07 16]
2	Workshop	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
2	World Cafe	Baumfeld et al. 2009. Instrumente systemischen Handelns (Instruments of systemic actions) Rosenberger Fachverlag Leonberg
3	Agent modelling	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
3	Backcasting	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
3	Balanced Scorecard	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
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3	Benchmarking	Strategic management insight - SWOT analysis [Retrieved from: <a href="https://www.strategicmanagementinsight.com/tools/benchmarking.html">https://www.strategicmanagementinsight.com/tools/benchmarking.html</a> 17.7.2018]
3	Cash Flow Planning	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
3	Causes Diagram	Silva N.S., Ponte J.C. 2019 Living Lab Research Concept – Toolbox. Internal Project Presentation, not published [retrieved from: <a href="https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo">https://issuu.com/fundodemaneio/docs/liverur_toolbox_v3_demo</a> 12.7.2019]
3	Competitive Advantage Analysis	Strategic management insight - SWOT analysis [Retrieved from: <a href="https://www.strategicmanagementinsight.com/topics/competitive-advantage.html">https://www.strategicmanagementinsight.com/topics/competitive-advantage.html</a> 17.7.2018]
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3	Competitor Analysis	Pöchtrager S., Wagner, W. 2018. Von der Idee zum Businessplan (From the Idea to the businessplan). Springer Gabler. Wiesbaden.
3	Connected Region (p.43)	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
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3	Cost-Benefit Analysis	<a href="https://en.wikipedia.org/wiki/Cost-benefit_analysis">https://en.wikipedia.org/wiki/Cost-benefit_analysis</a> ; <a href="http://www.businessdictionary.com/definition/cost-benefit-analysis-CBA.html">http://www.businessdictionary.com/definition/cost-benefit-analysis-CBA.html</a> <a href="https://www.wallstreetmojo.com/cost-benefit-analysis-examples/">https://www.wallstreetmojo.com/cost-benefit-analysis-examples/</a>
3	Critical Key Technology Study	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]
3	Desk Research	European Commission. 2012. Guide to research and Innovation Strategies for Smart Specialisations Annex III [retrieved from: <a href="http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides">http://s3platform.jrc.ec.europa.eu/-/guide-on-research-and-innovation-strategies-for-smart-specialisation-ris3-guide-?inheritRedirect=true&amp;redirect=%2Fcommission-guides</a> 4.7.2018]



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