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D5.2 CRFS-Living Lab facilitators, and guidelines for developments and innovations



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Abstract	This deliverable presents a practical Handbook for CRFS Living Lab (CRFS-LL). The Handbook prints out a roadmap to deploy Extended Innovation Pattern (EIP) to development and innovation actions towards sustainable Cities and Regions Food Systems. The Handbook is a documentation template for each CRFS-LL's unique diary and report. The Handbook gives guidance on how to maximize the synergies between task 5.2 and other work packages.
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Revision history

Version	Date	Comments & Status	Author
0	11.5.2021	The 1st version of the deliverable	SLEAN P14
0	10.6.2021	The reviewer's task was to assess that the D5.2 supports and is aligned with the CITIES2030 main challenge that identifies 2 specific scopes: 1) policies (namely, the Policy Labs, CRFS-PL) 2) strategies (namely, the Living Labs, CRFS-LL) which Cities2030 interlinks with systems thinking and innovation frameworks, etc. The reviewer pointed out the need to improve consistency and clarity on key terms such as CRFS Living Lab, Innovation Patterns, and Extended Innovation Pattern.	IAAD P05
1.0	10.6.2021	The D5.2 is peer-reviewed and updated accordingly.	SLEAN P05
1.0	30.06.2021	Layout verified by PMO	EPC P02

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Abbreviations

CITIES2030	Project CITIES2030
CRFS	Cities and Regions Food Systems
CRFS-LL	Cities and Regions Food Systems Living Lab
GA	Grant Agreement
EIP	Extended Innovation Pattern
IF	Innovation Facilitator
KPI	Key Performance Indicator
S2CP	Single Click CRFS Platform
UFSP	Urban Food Systems Policies
WP	Work Package

Executive Summary

The purpose of this deliverable D5.2 is to describe a framework of CRFS Living Lab (CRFS-LL) development and innovation activities, give guidelines to the execution of the Extended Innovation Pattern (EIP) in the form of a Handbook and documentation template, describe the overall role of the CRFS-LL Innovation Facilitator (IF), and identify common interfaces and synergies between Task 5.2 and other work packages of the CITIES2030 project.

The deliverable D5.2 describes the drafted provision of CRFS-LL's development and innovation Handbook, composed of three parts (A, B, C) and five chapters as presented in the below table.

Development and Innovation Handbook of CRFS Living Lab			
Part	The purpose of the part	Chapter no.	Chapter name
A	Describes CRFS-LL and delineates the role of the IF (ref. 2.1)	#0	CRFS Living Lab for Developments and Innovations
B	Outlines the Extended Innovation Pattern (ref. 2.2)	#1	Understand CRFS
		#2	Analyse the Challenge
		#3	Experimenting
C	Prints out the progress monitoring actions (ref. 3.2)	#4	CRFS-LL Dashboard

The Handbook template is shared on project month M12 in each CRFS-LL's own folder in Google Drive. The CRFS-LL deploys and populates the Handbook. At the end of the project, there will be one tested template of the Handbook for CRFS-LL developments and innovations, and several unique CRFS-LL reports on the development and innovation journeys.

The Innovation Facilitator's role is to advance the participatory multi-actor approach and learning at EIP execution to achieve best practices, developments, and innovations.

The deliverable D5.2 recognizes the common interfaces and supports synergies between Task 5.2 and other work packages. However, the implementation of Task 5.2 is planned in such a manner as to ensure that the Grant Agreement (GA) is fully respected. GA is the first priority, and it gives the frame, goal, content, and measures to the task. The second priority is to avoid causing harm to other work packages' implementation. The third priority and aim is that CRFS-LL can arrange their work as flexibly and efficiently as possible by e.g. merging activities, although GA separates them into different work packages or tasks.

1. Introduction

1.1 Instruments and deployment plan

Cities2030 generates instruments along with structured and actionable deployment plans. Cities2030 answers to the Horizon 2020 Programme call *H2020-EU.3.2.2. - Sustainable and competitive agri-food sector for a safe and healthy diet*, topic *CE-FNR-07-2020 - FOOD 2030 - Empowering cities as agents of food system transformation*¹.

Table 1 (below) shows the two most relevant requirements of the call and their responses according to the Grant Agreement.

Table 1: Relevant requirements of the call and GA's responses

Call requirement	WP5 and D5.2 response
Support cities to overcome existing barriers to food system transformation and develop integrated, sustainable and safe urban food system policies"	Cities2030 generates a comprehensive set of result-driven, actionable and deployable instruments to support cities: an observatory on UFSP (intelligence), a tailored System Thinking Methodology, a community of practice, policy and living labs, capacity building programmes, blueprints, an investment action plan, business models, a digital impact monitoring and action tool, a data-driven CRFS management blockchain platform, to name but a few.
Support cities to overcome existing barriers to food system transformation and develop integrated, sustainable, and safe urban food system strategies" these are concrete actions	Cities2030 generates a structured and actionable deployment plan which is validated by engaged EU pilot cities and based on the concrete actions already deployed by the referred cities.

CITIES2030 is an Innovation Action (IA) that implements a participatory result-driven roadmap supported and structured by practice-oriented and tested instruments.

1.2 Innovation roadmap

WP3 generates the extended innovation and development roadmap, executed in WP4, WP5, and WP6, and to some extent in WP7, in particular under Task 7.5 "Innovation and Intellectual Property management" and Task 7.6 "Exploitation of results plan an implementation".

CITIES2030 harnesses pertinent evidence from WP3, WP4, and WP5 to prepare the CRFS-LL experimental environments (i.e. minimum 10 cities and 2 regions), and sustains solid rationality and resources to define and future-proof novel concepts and solutions, as well as to secure replicability and scalability. The remaining work packages, particularly WP6, support, amplify and also review and reflect on the outcomes and key findings of the aforementioned three "technical" work packages.

¹<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-fnr-07-2020>

The below provision lists key measures of WP3, WP4, WP5, and WP6 to structure a solid, participatory and actionable basis for WP5 to develop novel solutions for sustainable CRFS.

The input from WP3 to WP5

- a) establish and activate CRFS-LL through processes that build community and trust (T3.1);
- b) create preconditions for the system thinking and system modelling activities (T3.4);
- c) structure and activate ten (10) working groups that tackle identified key themes of food systems and value chains to identify needs and requirements, and to find innovative pathways towards sustainability (T3.1);
- d) apply a data-driven and evidence-based approach to characterise the CRFS landscape (e.g. observatory, taxonomy compendium, trends, drivers, obstacles) (T3.2, T3.3, T3.5, T3.6).

The input from WP4 to WP5

- a) ensure an adequate activation of policymakers (T4.1, T4.2);
- b) build capacity in consortium partners, alliances partners and food system should facilitate an efficient co-creation process (T4.1);
- c) assess, co-create, co-produce and pilot policy life cycle that may issue material for policy measures enactments (T4.2);
- d) generate an overarching development paradigm focused on re-framing policy areas within the methodological framework of city resilience, uptaking from the MUFPP+² (T4.2);
- e) support to deliver 4 CRFS policy briefs and the "Cities2030 CRFS Policies Blueprint", a compendium of policies provisions structured to enter laws' enactment legislative processes (T4.3);
- f) co-creation and implementation of a deployment action programme to reach 50+ cities/regions (T4.4).

The synergy of WP6 and WP5

- a) WP6 explores and finds solutions on system modelling and data mining;
- b) Activities under WP3, WP4 and WP5 assist to gather, design and develop the main components and technological tools to generate a data-driven CRFS management platform (S2CP) for data collection, analysis and representation in multiple interfaces.

1.3 WP5 'CRFS ANGELS'

According to the Grant Agreement, the objectives of WP5 "Innovation, synergies and investment action" are as follows:

WP5 delivers a structured environment to unlock cities' innovation potential, driven by a comprehensive and diverse set of actors of the CRFS, to future-proof food systems according to 3 specific phases as indicated below.

PREPARE: WP5 identifies, structures, and accelerates innovation processes incorporating the design, pilot, validation, and deployment of cutting-edge food-related technology. WP5 explores challenges from the real-life food value chain and builds capacities in all actors of the food system and ecosystem arena to generate sustainable food supply chains and corresponding CRFS.

² Milan Urban Food Policy Pact extension developed in Cities2030: <https://www.milanurbanfoodpolicypact.org/>

INNOVATE: WP5 implements minimum twelve (12) pilots on products, services, and mechanisms at city/region level, and eventually generates sustainable business models.

SCALE OUT: Finally, WP5 puts effort into identifying and activating funding schemes to support the structured and sustainable development of aforementioned innovation frameworks.

The work package tasks are accordingly divided into three main phases (figure 1, below) which include four strongly interconnected technical Tasks. They complement each other and overlap on both timing and content perspectives.

The main phases and related Tasks are as follows:

- a) **Prepare:** Task 5.1 Capacity building programme to foster learning for transformation;
- b) **Innovate:** Task 5.2 Develop 10 innovations by applying Innovation Pattern and Task 5.3 Evolve Exploitation Plans and Business Plans;
- c) **Scale out:** Task 5.4 "CRFS SeedInvest" investment action programme.

The framework of the deliverable D5.2 is rooted in the intermediate phase: "Innovate", which in turn includes two interlinked Tasks: Innovation Pattern (Task 5.2) and Business Modelling (Task 5.3). D5.2 outlines a guidance that assists the CRFS-LL to walk through the Innovation Pattern (figure 2).

Each of the cities and regions developing a CRFS establishes a multi-actor CRFS-LL which is the main instrument to run an Innovation Pattern (Figure 2). Each CRFS-LL experiment is anticipated to be different from each other. The variations are interlinked to multiple elements related to food system components e.g., city/region environments, demography, land use, food industry, retailers network, etc. CRFS-LL human resources vary, and they act differently in terms of actions, pace and timing, experiences and competencies. The city/region's future vision and the noted gap between the current situation and future vision are diverse among living labs.

Due to the variation in the working environment, ambition, premises and resources etc., the guidance outlines a generic Innovation Pattern for the CRFS Living Lab. CRFS-LL applies the guidance as it is appropriate to meet their needs, requirements, and unique challenges. However, certain documentation requirements are set to address the needs for the progress documentation and monitoring to serve also the need of WP1, WP2, WP8 and WP9, as well as for enhancing and enriching internal and external communication, dissemination, and exploitation at WP7.

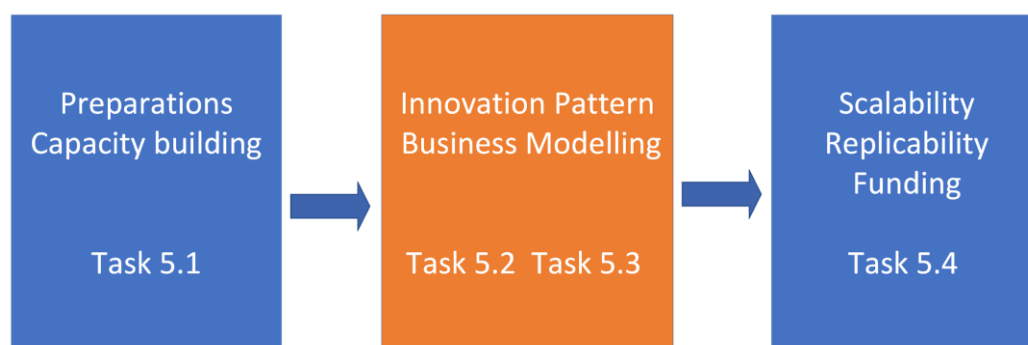


Figure 1: The three main phases of the work package 5

Each of the CRFS experiment executes the following steps of the Innovation Pattern (figure 2, below):

- a) identify the challenge to provide the direction for the innovation activities;
- b) gather and examine data and knowledge from the challenge and related real-life processes to form a true image of the process, variables, factors, effects, and impacts as it is now;
- c) pick up the next SMART Goals which reflect and respond to both the current state and the challenge, to identify and close the gap between current state and goal;
- d) execute rapid, real-life, and small-scale experiments (1-6 months) to reach out to the SMART Goals; apply Ideate-Build-Monitor-Learn cycle in a participatory manner; integrate Business Modelling into the experimentation cycles (Task 5.3), repeat steps 3 and 4 several times to carry out a sequential series of experiments that are to advance progress towards solving the challenge.

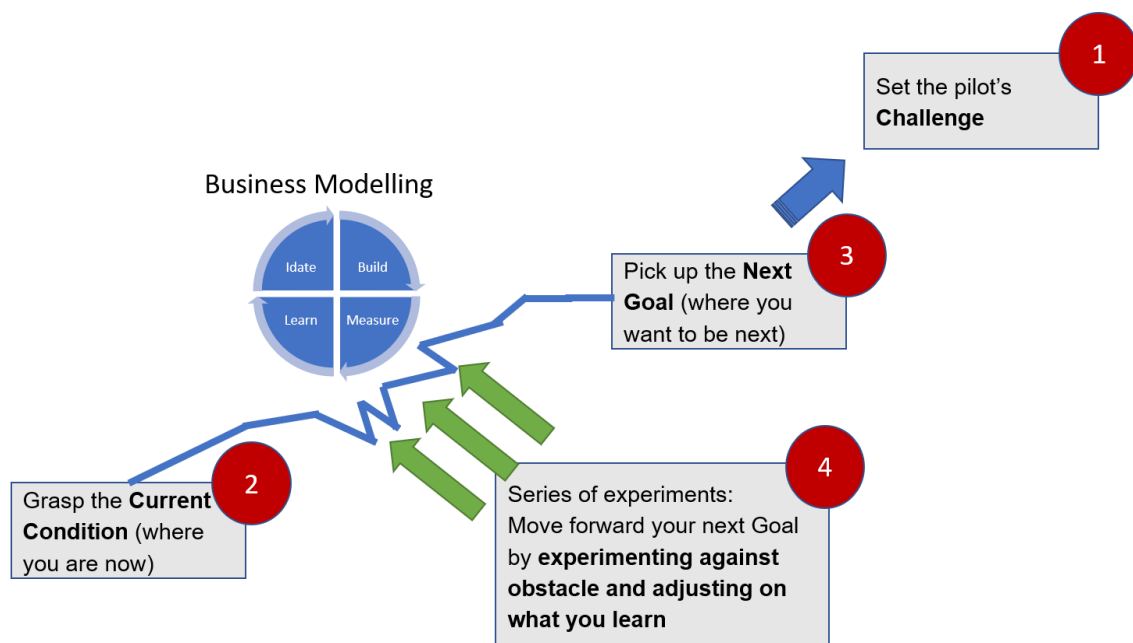


Figure 2: Innovation Pattern and Business Modelling

In order to maximize the exploitation of the project's results and tasks generated by the activities run in work packages, it is pertinent to **extend the scope of the Innovation Pattern** for including the actions in WP3, WP4, and WP6 (see chapter 1.2). WP3 and WP4 build competencies and knowledge to understand the city/region's food systems. These two WPs generate data-driven scrutinized and substantiated inputs to the WP5. WP6's provision is e.g. a S2CP-platform for data gathering, data analytics, and system mapping and modelling.

1.4 The Extended Innovation Pattern (EIP) merges WP3, WP4, WP5, and WP6

The Extended Innovation Pattern (EIP), which merges WP3, WP4, WP5 and WP6, is presented in this chapter.

Accurately defined, the Extended Innovation Pattern (EIP) assists in forming a clear pathway for the CRFS-LL exploration and experiments for the project time span. To enhance the planning of CRFS-LL activities, the engaged actors must have a vision of the forthcoming requirements and know the needs from the WP's management side. In addition, it is vital to coordinate and synchronize tasks and results in all related WPs (WP3 to WP6), and accordingly generate the maximum benefits for the project's partners and engaged actors, and thus, support their common activities to achieve the project objectives and KPIs.

The figure 3 (below) describes the EIP. These three key elements are 3 sequential diamonds, 3 intermediate and final results, and 3 data boxes.

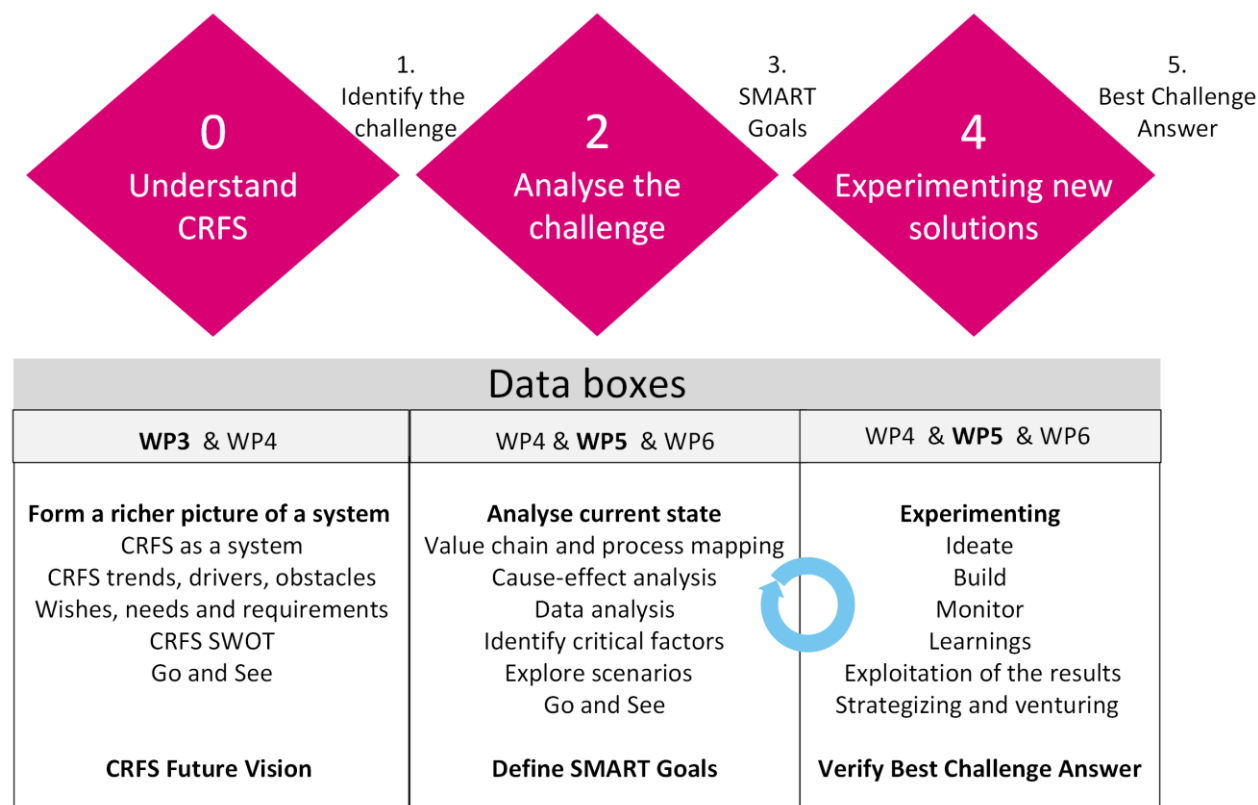


Figure 3: The Extended Innovation Pattern

Three (3) sequential diamonds - the triple-diamond - is a tailored version of the double-diamond which is a well-known model in the Design Thinking³ process. Each of the three diamonds addresses a specific scope and generates distinct results (Figure 4).

The first diamond - Understanding CRFS focuses on understanding the city/region food system at the systemic level. It explores external and internal factors and phenomena to form a picture of the current and future state of CRFS. The first diamond scope is the broadest of the three. It represents policy-decision and strategic management level. The time span of the first diamond is the first year in the CITIES2030 project.

The second diamond - Analyse the challenge addresses modelling the field of the specific challenge identified by the multi-actor CRFS-LL while they explore CRFS (ref. first diamond). This challenge provides a frame for the CRFS-LL actions e.g., map processes and functions, recognise variables, gather, categorise and examine data. The outputs of the second diamond are as follows: a data-based system model, an improved and shared understanding of the challenge's field, and a plan for the CRFS transformation including SMART Goals.

The third diamond - Experimenting new solutions is dedicated to the rapid, sequential and designed experimentations which aim at finding solutions to the challenge. Each experimentation is planned, built,

³ Design Thinking Academy <https://www.designthinkersacademy.com/why-design-thinking/>

monitored, and analysed by the multi-actor engaged in the activities in a participatory manner. The result of the third diamond is called Best Challenge Answer.

The actors implementing the CRFS-LL may notice that after carrying the experiments they recognize a need for collecting additional data and executing complementary studies. It forces the actors to return to the second diamond to complement the acquisition of information. Thus, the second and third diamond is a pair feeding each other, and they are frequently repeated.

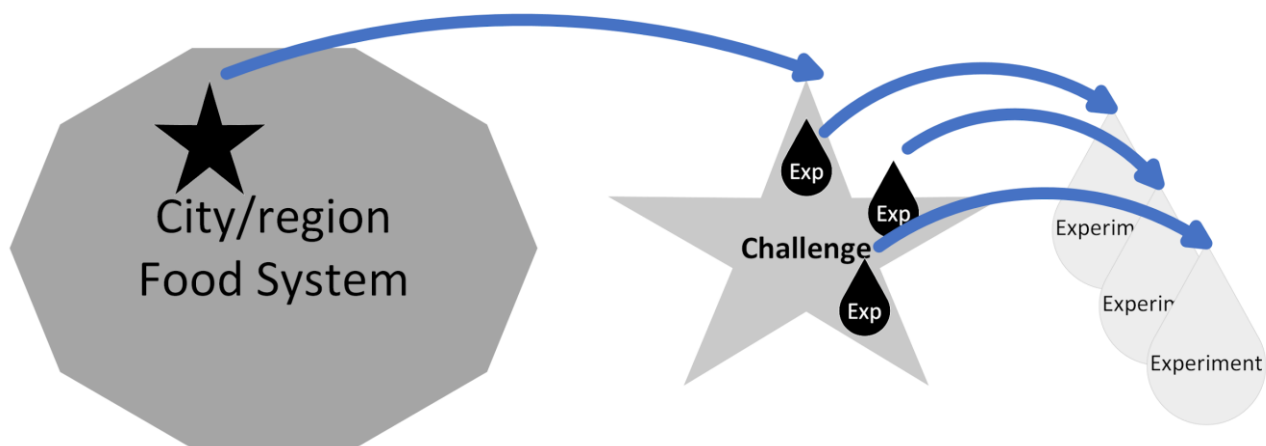


Figure 4: The three scopes of the EIP

Three (3) intermediate and closing results

The first intermediate result is the statement which identifies, describes, and documents the challenge. The '**1. Challenge Statement**' sets out the issue or challenge which needs to be addressed. It gives the direction and frame for the innovation and development actions for the project time span, and beyond. The challenge is a brief statement which does not anticipate how the challenge will be solved. The term 'challenge' has been specifically used to avoid the tendency of simply focusing on a 'problem' only. Here, a 'problem' refers to an existing process requiring improvement, whereas a 'challenge' refers to a future vision that is achievable by a specific transformation process supported by reengineered solutions.

The second intermediate result is defined as '**3. SMART Goals**'. The acronym SMART comes from the association of the words "Specific", "Measurable", "Actionable", "Realistic" and "Timed" (figure 5, below). These words define the requirements that are addressed to a well-defined goal rationale. All CRFS-LL comprehensively explore challenges generated by identified real-scale and real-life needs, to allow a fine-grain definition of the baseline and SMART Goals for the next experiment. The well-defined goals support the planning, management, and assessment of the experiments.

SMART Goal

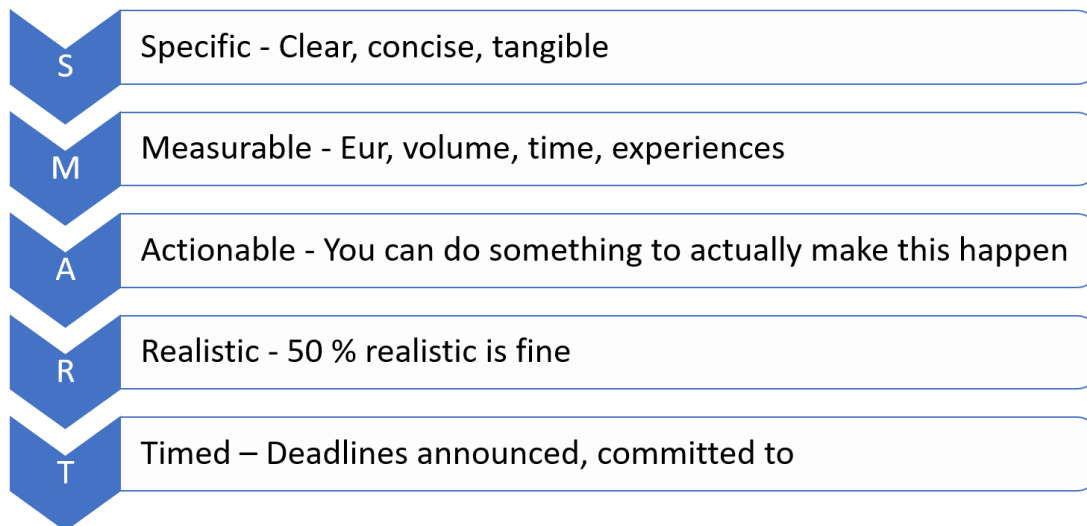


Figure 5: SMART Goals

The concluding result is the optimal answer, which is tested and validated by a multi-actor approach. The nature of the solutions varies. It may tackle products or processes. It may be a new service, new business model or pioneering solution which updates and upgrades companies. Furthermore, it can be the result of incremental developments or a breakthrough solution. The figure 6 (below) is an illustration of '9 Types of Innovation' by leanventures.se. It outlines the diversity of the innovation world.

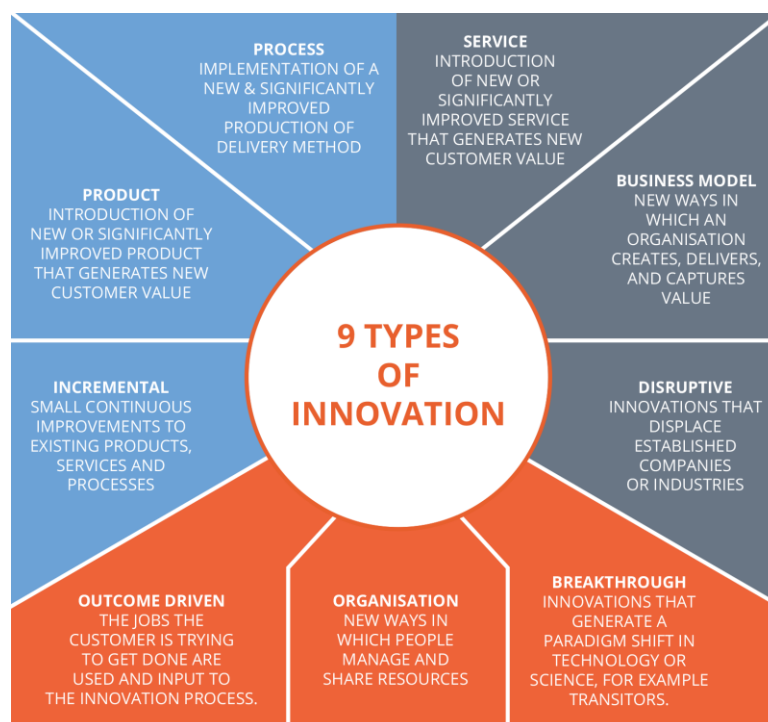


Figure 6: 9 Types of Innovation (source: www.leanventures.se)

Three (3) data boxes, as shown in figure 3, demonstrate and provide detailed examples on the nature of data, evidence, analysis, and tasks covered by each diamond.

The first data box delineates the examination of the city/region food system comprising external and internal trends, drivers, obstacles and also measures for mitigation that have an impact on the food system performance and innovation pathways. During the first diamond stage (year 1), WP3 carries out dialogues with all engaged actors to identify both root-level and governance level needs, requirements, and aspirations. The examination of current strengths and weaknesses, and consequently the identification of future opportunities and threats, are part of the systemic level scrutiny. The conclusions of the examination process strive to portray both the future vision of the city/region food system and a data-driven and data-bolstered framework of the current state. The gap examination concludes the exploration: What must evolve?

The second data box dives deep into the field of the challenge with a focus on scrutinising the current status by mapping processes, examining root-causes, and recognising critical factors with reliable data. The data is used to generate a model of the system by visualising trends, correlations, clusters, variations, performances, etc. Summarizing the data examination and the knowledge acquired by the actors of CRFS-LL experiments fosters the development of reliable and accurate scenarios for experimental design purposes.

The third data box lists the phases of the experimenting cycle: 'Ideate-Build-Monitor-Learnings'. The cycle is rooted in the Lean Startup⁴ methodology, which is originally built upon Lean thinking. Lean Startup is chosen because the aim is to build novel, innovative, and also tangible solutions, and involve actors of CRFS-LL into the process. The integration of Lean Startup and business modelling tools as Strategy Sketch, Business Model Canvas and Lean Canvas⁵ is direct and fluent⁶. Task 5.2 and Task 5.3 implement a knotted co-operation process in the experimentation phase to ensure synchronized and fluent processes from a CRFS-LL perspective.

1.5 The Key Performance Indicators (KPI)

According to the GA, the WP5 advances the achievement of the project's KPIs presented in Table 2 (below). The fifth chapter of the Handbook looks into the CRFS-LL experiments' achievements and results and also compares them to the identified KPI.

Table 2: KPIs relevant for WP5 (Y = year)

KPI	Operation, objective and related WP	Periodicity	Format
50	Number of challenges	Y2-Y4	Task 5.2
50*3	Number of SMART Goals	Y2-Y4	Task 5.2
50*2	Number of experiments	Y2-Y4	Task 5.2
100+	Number of documented improvements	Y2-Y4	Task 5.2
50+	Number of good practices (generated)	Y2-Y4	Task 5.2

⁴ Lean Startup model: <http://theleanstartup.com/principles>

⁵ A comparison of the Business Model Canvas, the Lean Canvas and the Strategy Sketch, <https://www.pimcy.nl/en/business-model-canvas-lean-canvas-and-strategy-sketch-compared/>

⁶ HBR <https://hbr.org/2013/05/why-the-lean-start-up-changes-everything>

10+	Number of innovations	Y2-Y4	Task 5.2
10*2	Number of Innovation Pattern sessions	Y2-Y4	Task 5.2
50*3	Number of exploitation workshops	Y2-Y4	Task 5.3
5+	Exploitation plans	Y2-Y4	Task 5.3
10+	Business plans	Y2-Y4	Task 5.3
500	Number of engaged stakeholders	Y1-Y4	WP3, WP4, WP5
50%	Number of women	Y1-Y4	WP3, WP4, WP5
50%	Number of men	Y1-Y4	WP3, WP4, WP5
20%	Number of youngsters	Y1-Y4	WP3, WP4, WP5
10%	Number of policy-makers	Y1-Y4	WP3, WP4, WP5
20%	Number of governance representatives	Y1-Y4	WP3, WP4, WP5
40%	Number of food system experts	Y1-Y4	WP3, WP4, WP5
10%	Number of other community members	Y1-Y4	WP3, WP4, WP5
100 participants M12 500 participants M48	Networking (WP2, 3, 4, 5, 6, 7)	Continuous	Blended onsite, Online (B2O)
8	Miscellaneous events (WP2 to 7)	2/year	B2O
8	Workshops (WP2 to 6)	2/year	B2O
5.000	Website's single viewers (WP2 to 7)	Continuous	Online
5.000	Social media pages followers (WP2 to 7)	Continuous	Online
10.000	Media printed material (WP2 to 7)	Continuous	Onsite
8	Press releases (WP2 to 7)	Continuous	B2O
4	High-impact publications (WP2 to 7)	1/year	B2O
4	Open access scientific articles (WP2 to 7)	1/year	B2O
4	White papers (WP2 to 7)	Continuous	B2O
10	Videos on cities' CRFS (WP2 to 7)	Continuous	B2O
10	Videos on CRFS innovation (WP2 to 7)	Continuous	B2O
3	Video on ethics, gender and RRI under CRFS plans (WP2 to 7)	Continuous	B2O
4	Newsletters (WP2 to 7)	1/year	B2O

2. Framework of Living Lab Development and Innovation

The framework of Living Lab Development and Innovation is structured in the form of a pragmatic Handbook. The purpose of the Handbook is to give guidance to CRFS-LLs on how to initiate and proceed along with the EIP (figure 3). The Handbook aims to provide CRFS-LL a view of what kind of tasks and measures are to be recommended and, accordingly, carried out. The Handbook includes tutorial material in the form of a curated reference list.

The Handbook is based on the objectives and features listed below:

- it outlines the EIP to take into account WP3, WP4, and WP6;
- it delivers information on how the main tasks are linked to the other project work packages;
- it encourages actors to document progress, to keep diaries, and create content e.g. in the form of notes, responses, analyses, visualisations, results, feedback;
- it provides a basis and data to monitor CRFS-LL plans, events, and results in respect of time, quality, efforts in persons-months, risks, and KPI;
- it builds a pathway to the Task 5.3 which implements the exploitation and business plan;
- it brings an input to the deliverable D5.4 which is an action plan for an additional funding scheme.

The template of the CRFS-LL Development and Innovation Handbook is a “living” document that is to be developed iteratively till the end of the project.

The next chapters give an overview of the Handbook, whose structure is stated in Table 3:

Table 3: The structure of the Handbook

Development and Innovation Handbook for CRFS Living Lab			
Part	The purpose of the part	Chapter no.	Chapter name
A	Describes CRFS-LL and delineates the role of the IF (ref. 2.1)	#0	CRFS Living Lab for Developments and Innovations
B	Outlines the Extended Innovation Pattern (ref. 2.2)	#1	Understand CRFS
		#2	Analyse the Challenge
		#3	Experimenting
C	Prints out the progress monitoring actions (ref. 3.2)	#4	CRFS-LL Dashboard

2.1 CRFS-Living Lab - Part A of the Handbook

The part A of the Handbook explains the profile, management, and resources of the CRFS-LL and also delineates the role and responsibilities of the IF (10+ pcs).

Part A urges the participants to familiarize themselves with the work and results of the WP3/Task 3.6: to examine the food system arena, map the innovation landscape and generate Cities2030 CRFS-LL prototype,

and test it as well. The tested prototype offers room for enhancements and pioneering solutions, and constitute a reference for existing and forthcoming CRFS-LLs. Task 5.2 examines and exploits the results of Task 3.6 while developing CRFS-LL.

The preliminary index of the Handbook's chapter **#0 CRFS Living Lab for Developments and Innovations** is as follows:

1. CRFS-LL prototype
2. City and Region Food System Living Lab
 - 2.1 CRFS-LL general introduction
 - 2.2 CRFS-LL core team, contact information, and roles
 - 2.3 Partners person-months and efforts for the CRFS-LL
3. Food system arena agents and stakeholders
4. Working groups
5. Lab's communication & dissemination plan

CRFS-LL Innovation Facilitator

The Innovation Facilitator's (IF) role is to advance the participatory multi-actor approach and learning at EIP execution to achieve best practices, developments, and innovations.

Each CRFS-LL that executes EIP nominates an IF, namely a local person who knows the conditions. The IF's role is adjusted based on the person's experiences, competences, and other available resources. Each IF develops a unique role that is tailored to his/her competences and CRFS-LL's plans. For that reason, the below list of the IF's role is not comprehensive, it is more like a suggestion to consider.

- Facilitate the "own" living CRFS Living Lab to achieve best practices, development and innovations
- Connect with other IFs to build a network and capacity
- Understand the purpose and vision of the CRFS-LL
- Understand different participant groups' motivations and drivers to join in CRFS-LL
- Engage and equip multi-actors stakeholders in the CRFS-LL by defining the purpose of the action
- Plan and carry out workshops for co-design, peer- and group learning
- Facilitate co-creation and innovativeness: define the process of workshop, integrate people into process, define the tools and methods used at the process
- Understand, summarize, and communicate the outcome of the process; tangible results, wider outcomes, and long-term impacts
- Document the plans and conducted activities in the CRFS-LL's own Handbook
- Build synergies with other work packages, tasks, and CRFS-LLs
- Build continuity; emphasize the vision, identify opportunities for sustainable CRFS-LL.

The capacity building of the IF group takes place in a form of peer- and group learning, preferably together with other IFs (e.g. policy lab) of the consortium. The leader of Task 5.2 invites IFs to the first IF's Cafe by the project month 15 to plan the capacity building activities and other common activities.

2.2 Extended Innovation Pattern for the CRFS-LL - Part B of the Handbook

Handbook's part B is aligned with the EIP for the project time span (figure 3). Part B consists of three chapters: Understand CRFS, Analyse the Challenge, and Experimenting new solutions.

2.2.1 Understand CRFS - the first diamond

The results of the first diamond are due to the efforts made in work packages 3 and 4. WP6's role is to give IT support. WP5 and Task 5.2 extract the results of WP3 and WP4 for the benefit of the development and innovation journey of the CRFS-LL that carries out an experiment.

The purpose of the first diamond is to help CRFS-LL actors (i.e. project partners and stakeholders) to form a common and evidence-based big picture of the CRFS: current state and future vision, and to identify the inspiring challenge for the CRFS-LL that will carry out experiments.

The results of the first diamond are expected to be: a shared understanding of the CRFS, participants' improved knowledge of the food systems at a systemic level, and a written challenge statement for the CRFS-LL. The challenge statement is a starting point to the development and innovation journey.

The preliminary index of the **#1 - Understand CRFS** is given below:

1. General introduction of the city/region
2. Cities and regions food systems and systems thinking - T3.4
3. External drivers and trends of change that may impact the future CRFS
4. City/region innovation landscape - T3.6
5. Developing CRFS indicators - T3.5 and T3.7
6. Obstacles and vulnerabilities - T3.2 and T3.3
7. CRFS 8-box SWOT analysis/TOWS matrix
8. Needs and requirements analysis
9. Engage the game changers in the transformation
10. Go and See - Site visit reports
11. Pull, push, and activate the 10 focus groups
12. Conclusion of the CRFS future vision and current state
13. CRFS challenge statement

2.2.2 Analyse the Challenge - the second diamond

The purpose of the second diamond is to analyse the scope and field of the set challenge. The current state analysis is conducted on the addressed value chain/process by collecting quantitative and qualitative data and by analysing the data as well. The analysis results are shared and communicated in a multi-actor environment.

The outcome of the second diamond is a shared and improved understanding of the challenge field. The result is a data-driven and visual tentative system model which is fitted to the challenge frame. The tentative system model gives a base and tools to communicate, ideate, and analyse the challenge. It assists in drawing scenarios, setting the SMART Goals, and initiating plans for the following experiments.

The preliminary index of the **#2- Analyse the Challenge** is detailed below:

1. Visualise the challenge by using e.g. value chain and process mapping
2. Identify potential change factors
3. Data collection and data analysis
4. Identify the evidence-based change factors
5. Explore scenarios
6. Go and See - Site visits reports

7. Define the SMART Goals

2.2.3 Experimenting with new solutions - the last diamond

The main purpose of the last diamond phase is that CRFS-LL carries out experiments (1-3 pcs) with new ideas and solutions to tackle the set challenge. The final result of the last diamond is called Best Challenge Answer.

The preliminary index of the **#3- Experimenting** is given below:

1. Ideate
2. Build
3. Monitor
4. Learn
5. Exploitation of the results & business modelling (ref. T5.3)
6. Strategizing and venturing

3. Management procedures at Task 5.2

3.1 Support, advisory, and capacity building for CRFS-LL

CRFS-LL partners, who execute EIP and carry out experiments, get support and advisory on a regular basis at bilateral sessions which are organized by the leader of Task 5.2. Partners may request additional support when facing a certain need. Therefore, partners' own activity is the driving force.

Task 5.1 organizes training sessions for consortium participants and stakeholders. Knowledge transfer, crossing different CRFS-LL, is recommended and supported.

3.2 Monitoring CRFS-LL progress - Part C of the Handbook

Task 5.2 leader organizes regular basis reflection/planning sessions with the CRFS-LL partners that execute EIP. The purpose of the sessions is to review and document the following issues:

- overall progress
- human resources (i.e. person-months)
- time management vs. progress
- results
- alignment
- risks
- opportunities
- KPI monitoring

The monitoring sessions deploy the part C of the Handbook which is called the **#4 - CRFS-LL Dashboard**.

The reflection/planning session assists in a) foreseeing problems and deviations, b) supporting partners to fulfill their tasks towards EC and consortium.

4. Conclusion & next steps

4.1 The structure, deployment, and use of the Handbook

Deliverable D5.2 structures the Handbook according to the below table.

Development and Innovation Handbook for CRFS Living Lab			
Part	The purpose of the part	Chapter no.	Chapter name
A	Describes CRFS-LL and delineates the role of the IFs (ref. 2.1)	#0	CRFS Living Lab for Developments and Innovations
B	Outlines the Extended Innovation Pattern (ref. 2.2)	#1	Understand CRFS
		#2	Analyse the Challenge
		#3	Experimenting
C	Prints out the progress monitoring actions (ref. 3.2)	#4	CRFS-LL Dashboard

The following principles are applied when CRFS-LL deploys and uses the Handbook:

Principle 1 - Open access and innovation to promote knowledge transfer: the consortium partners can read all CRFS-LLs' Handbooks.

Principle 2 - Build upon evidence-base good practices and prior knowledge.

Principle 3 - The populated Handbook demonstrates CRFS-LL progress, intermediate and final results. It justifies the working hours that partners report to Task 5.2.

Principle 4 - Handbook can become better: provide feedback, bring improvements, give better references, etc.

The first draft version of the Handbook chapters #0 - #4 is shared via CORRELATE - platform in project month 8. The partners' improvements, comments, and questions on the Handbook are gathered and considered till project month 12. The CRFS-LL deploys the Handbook starting with M12. The deployment of Handbook is supported by the leader of Task 5.2 in regular bilateral meetings.

Task 5.2 leader will arrange the first Café for Innovation Facilitators by the project month 15 and initiate the debate of their learning needs.

It's foreseen that the implementation of the Handbook includes risk and challenges. They are presented in Table 4 below.

Table 4: Foreseen risks and a plan to mitigate the effect

Description of risk	Severity 1,3,9	Probability 1,3,9	Proposed risk-mitigation measures	Who
CRF-LL does not apply open innovation, multi-actor approach, and co-creation practices in the local environment.	9	3	CRFS-LL coordinator and IF have a major role and their motivation and capacity building is a priority task. Knowledge transfer mechanisms amongs CRFS-LLs are to be developed by partners' own activity.	T5.1 and T5.2 leaders partners of LL
Task 5.2 and CRFS-LL do not seek synergies with other work packages and groups e.g. policy lab.	9	1	The Handbook includes tasks that guide CRFS-LL to exploit other WPs' and groups' results, and to contribute to others as well.	partners of LL
The tasks suggested in Handbook are not understandable and CRFS-LL process stagnates.	9	3	The regular basis bilateral meetings. Advisory sessions by CRFS-LL's request. Q&A.	Task 5.2 leader
The tasks in the Handbook are not meaningful or useful for the CRFS-LL, and that is why they fail to implement them.	1	3	CRFS-LL can adjust the Handbook so that it fits better to the need, but certain requirements are to be met e.g. provision to WP1, WP7, and progress monitoring.	Task 5.2 leader
CRFS-LL does not deploy and populate at all the Handbook in GD.	9	3	The root cause is examined and the solution, if any, is implemented.	Task 5.2 leader
CRFS-LL do not hare their populated Handbook in GD to other partner.	3	3	The root cause is examined and the solution, if any, is implemented.	Task 5.2 leader
The populated Handbook does not t provide adequate information to PMO, ExeCom, and other WP leaders.	9	3	PMO, ExeCom, and WP leaders' feedback is actively heard, reflected, and analysed by the task leader to lead to improvements.	Task 5.2 leader
The populated Handbook does not provide adequate information on the official progress/finance reporting in months M18, M36, and M48.	9	3	M18 is a test. Handbook is updated to serve better the needs of official reporting by M36 and M48 for EC.	Task 5.2 leader PMO
The Handbook guidance and EIP implementation does not lead to best practices, developments or innovations for sustainable CRFS.	9	1	The performance and achievements of CRFS-LL are monitored on a regular basis by CRFS-LL themselves, Task 5.2 leader, PMO, and ExeCom. CRFS-LL feedback is actively heard, reflected, and analysed by the task leader to lead to improvements.	Task 5.2 leder, PMO, ExeCom

4.2 Synergies with other work packages and tasks

The Deliverable 5.2 has been prepared by consulting with the partners of the consortium to seek common interfaces and synergies with other work packages and tasks, and to avoid overlapping. However, the implementation of Task 5.2 is planned in such a manner that the Grant Agreement is fully respected. GA is the first priority and it gives the frame, goal, content, and measures to the Task 5.2. The second priority is to avoid causing harm to other work packages' implementation. The third priority and aim is that CRFS-LL can arrange their work as they see best e.g. by merging activities, although GA and task level guidance separates them into different work packages or tasks.

Although the preliminary ideas of the synergies with different work packages are structured into the Handbook, the implementation will require efforts e.g. documenting, planning, testing, correcting. The below list outlines the current status or development needs of implementing synergies:

- WP1 benefits T5.2 inputs that are defined in the Handbook, but it needs testing and coordination.
- The exploitation of the results of WP3 are taken into account in Handbook: #1 - Understand CRFS.
- The exploitation of the results of WP4 at Task 5.2 needs exploration and planning.
- A possible common training for facilitators (Task 4.2 and Task 5.2) needs to be planned.
- The synchronization with Task 5.2 and Task 5.3 is covered in Handbook: #3 - Experimenting.
- WP6's ICT platform provision is an integral part of EIP execution. It is covered in Handbook: #2 - Analyse the Challenge.
- WP7 benefits Task 5.2 inputs that are defined in the Handbook, but it needs testing and coordination.
- WP8 needs are covered by CRFS-LL progress monitoring and data collection for official periodical reporting for the EC.

ANNEX

The Handbook template that encompasses 5 chapters is the annex of Deliverable D5.2. The Handbook template is a living document available via links of Correlate and Google Drive given in the below table.

Platform	Link to the Handbook template
CORRELATE	https://app.correlate.com/dashboard/team/42781161-dba5-463d-b48e-88b038830846/board/37bf3120-0fd6-42dc-a226-c2e36e381cf1
Google Drive	https://drive.google.com/drive/folders/1V_uR-4lOjQRCC07oRfpOr-loBao6lle_?usp=sharing

CRFS-Living Labs will take the first version of the Handbook into production use at M12. Task 5.2 leader updates the template periodically every 6 months starting from M12 according to feedback and observations of the CRFS-Living Labs.