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D.5.3 Pilot Cities Innovation Action Plans



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1 Introduction

“Food systems have potential to make things better through their ability to connect people and planet. They are the basis of many livelihoods, the roots of prosperity and can help counter shocks and crises. But if they are not got right then they can make things worse” (UN Food System Summit 2021)

How can small-scale place-based experiments aimed at a solving the pressing and complex problems of the food system become more widely adopted and lead to transformative impact?

This is the question, we want to address in this report and the answer is central to the Cities2030 project, which is an innovation action financed by the EU Horizon 2020 program (grant agreement number 101000640). In the Cities2030 project, 15 cities and regions will be piloting policy and innovation experiments in living lab type environments to ideate and build new solutions in small spaces that can be part of the answer to transformation of the Food System towards greater sustainability.

Through Cities2030 broader platform of solution validation, knowledge creation, and engagement of actors across the food system, it is the ambition to scale the outcomes of the experiments for larger impact. By scaling *out*, and stimulate uptake of good practices and solutions to more cities. By scaling *up* and create impact at broader institutional and policy level. And, not least, by scaling *deep*, in the sense of creating impact in the local places at a food relational and cultural level.

“Food systems are dynamic and always changing. What scope is there for influencing the ways in which food systems evolve so that they urgently become more pro-people, pronature, and pro-equitable prosperity? Are they able to make a unique and far-reaching contribution to sustainable equitable and resilient futures for all people by 2030?” (UN Food System Summit 2021)

Empowering cities and their surrounding communities to take action is a cornerstone in the European Commission’s Food2030 strategy¹. In order to safeguard the provision of food for all, it is necessary to transform the food production system at large, and calibrate both production, consumption, distribution, access and waste management to sustainability, e.g. to regenerative and responsible practice.

The future-proofing transformation has to be done at multiple policy and action levels with both global and local reach. It follows, that the innovation scope is very broad, which has been laid out in the Food2030 strategy; and “empowering cities and their communities” is one of ten identified pathways for action².

1.1 About this report

1.1.1 Cities2030 Project

Cities2030 is a four-year project with 40 partners across 14 countries³. These partners join forces to explore the potential role of cities and their surrounding regions, i.e. city regions,

² Food2030 Pathways for action, EC 2020, available at: https://ec.europa.eu/info/publications/food-2030-pathways-action-research-and-innovation-policy-driver-sustainable-healthy-and-inclusive-food-systems-all_en

³ <https://cities2030.eu/>

to transform urban food systems towards greater sustainability. The Cities2030 project is one of several ongoing international collaborations⁴ with the aim of creating knowledge and blueprints on how cities can take action, address the food system challenges with a lens of opportunity for innovation, prosperity and resilience.

The experiments in Cities2030 pilot cities and regions will regard the strain of innovation that looks at interlinks between cities and regions that are functionally connected in terms of food production and e.g. with potential short food supply chains and social and economic benefits of closer collaboration. This corner of the Food system innovation is also known as “CRFS”, city region food systems. Together with the networked mayor’s declaration and commitment through the MUFPP (Milan Urban Food Policy Pact) this constitutes a conceptual and thematic framework for the experiments in the living labs.

City region (CRFS) innovation is emerging as an innovation framework to create better interlinks between urban and rural areas in a city regional territorial context. For instance, through local markets, urban food production, smart land-use etc. but the scope of solutions and specific strategies are still emerging.

Therefore, experiments are needed to create a better understanding e.g. through typology identification of strategies, levers and efficient pathways for change and value creation. Cities2030 works through three primary levels and steps:

Step 1. Build: From idea to solution: Place-based living labs discover local potentials for CRFS development and experiment to ideate and incubate new solutions and practices at local level. Through open innovation principles, participatory processes and multi-stakeholder engagement.

Step 2. Analyze and dynamize: Through a portfolio approach to layering solutions and facilitation of networked communities of practice, contribute to grounding a CRFS innovation typology, articulation of contextual parameters, and efficient pathways.

Step 3. Scale and impact: Through horizontal adaption, uptake in larger geographical area by dissemination of validated concepts of both solutions and CRFS Lab approach (deployment to 50 cities) and not least guidance on parameters for feasibility and desirability when applied in other city regions. Through vertical impact including the aim to stimulate excellence through pre-seed funding and standardization of the innovation strand.

The philosophy in Cities2030 is that no one can fix everything but everyone can do something, and that change starts with recognition and the ability to act:

“Ideas are easy, Execution is everything. It takes a team to win” (John Doerr)

1.1.2 [Content](#)

This report is primarily aimed at the Cities2030 partners and is intended to be a supporting document to the implementation of the innovation action and specifically the framework for connecting the individual pilot CRFS labs’ activities to the larger

⁴ Other related projects include Fusili and FoodTrails. Within Horizon 2020 approximately 9 projects have been supported representing an investment of around EUR 80 million. See list in Food2030 Pathways for Action (2020) pg. 39 for list and descriptions.

outcomes and ambition. The report will thus form the foundation for a series of Exploitation workshops, that are carried out to train and engage with lab on ensuring both delivery of solutions and advocating their scalability when selecting and designing experiments.

In **chapter 2** the scope and nature of “Urban Food System Innovation” is introduced. This chapter is meant to set the scene for *why* and *how* cities and city regions can take action and thereby scoping out the field of innovation and action. This is a complex of both policy commitment at the local level as well as applying instruments (urban living labs) as incubators of sustainable solutions built in a co-creative way with engagement of the local stakeholders.

In **chapter 3** the “Cities2030 approach to CRFS innovation” is described. This chapter is meant to show the project specific application of the city regional innovation measures, including the construction of CRFS Labs and the network of pilot city regions and their indicated circumstances and interest. The actual innovation process in the labs is inspired by design thinking (double diamond process) with phases of discovery, definition, development and delivery of solutions⁵.

In **chapter 4** the “CRFS Lab Results Exploitation Framework” is presented. This chapter presents the overall logic model from the labs’ experiments to their collective transformative impact on the food system and provides an overview of “what can be done” at each level of exploitation. At lab level, project level and a scaled level. This entails also an elaboration of the Cities2030 support model on assessing the results and creating pathways of exploitation.

The report includes as annex an outline of the exploitation workshops which will be held on the basis of this report’s content.

⁵ This innovation process is further described in another Cities2030 report “Deliverable 5.2 Guidelines and Facilitators”.

2 Urban food System and The Scope of CRFS Innovation

This chapter intends to set the scene for the work in CRFS labs. Specifically, it provides the context of the urgent need for food transformation, as framed and incentivized at in the European Commission's R&I strategic framework for urban food system change. This is the direct background for the Cities2030 project. Next, it introduces the established frameworks for city regional collaboration and programmed action as given by the MUFPP declaration and related indicator framework as well as the CRFS framework, that promotes a process to discover and scope local opportunities and challenges as a base for action. These frameworks are both central to the Cities2030 in that all pilot cities will sign the MUFPP declaration and engage in CRFS inspired processes of analysis of the local food system context to inform the focus of the experiments. Finally, Urban Living Labs are briefly introduced as an increasingly applied method to create sustainable and inclusive innovation in local territorial contexts. The living lab methodology has specifically informed the conceptualization of CRFS-Labs which constitutes a core instrument in the overall Cities2030 to drive the development of both new policies and food system governance as well as innovative solutions - whether public services, social innovation or incubation of new business on the background of CRFS.

2.1 The Quest for Sustainable Food System Transformation

The need for transformation of the global food system is articulated and high on the political agenda at all levels, as food is a cornerstone in human life, and the food system a complex with strong connection to economy, environment and social systems. The current food systems is both affected by and a driver of: *climate change, resources scarcity, pollution and waste, environmental degradation, loss of biodiversity, population growth and urbanization, malnutrition and diet-related disease.* **The unequal access to healthy and nutritious food paradoxically coexists with an estimated loss of 30% of all produced food.**

2.1.1 Sustainable Development Goals – The Commitment to SDGs

Recently at the **UN Food System Summit in September 2021**⁶, the importance of food system transformation to the 2030 Agenda for Sustainable Development was articulated, and change advocated in line with the SDGs⁷, with implementation through both local, regional and global coalitions. The SDGs provide a comprehensive, holistic view of the interconnecting elements of sustainable development, and this allows for an overall understanding on how food systems connected to such different areas as health and nutrition, industry and sustainable production, decent jobs and natural systems and climate (Figure 1).

Preceding this summit, a long process food system dialogues had taken place in 92 countries and provided substantial background for understanding regional dynamics, challenges and agendas with relation to progressing on the **related SDG goals**. In the synthesis of these dialogues, innovation and finance were identified as *levers of transformation*, along with infrastructure for smallholders and better governance with integrated land and water planning, focus on livelihoods, recovering surpluses,

⁶ <https://www.un.org/en/food-systems-summit> there are several reports related, including a report of national food system dialogues in 92 countries which detail the local dynamics and agendas for change: <https://summitdialogues.org/wp-content/uploads/2021/09/UN-Food-Systems-Summit-Dialogues-Synthesis-Report-3-Full-Text.pdf>

⁷ <https://sdgs.un.org/2030agenda>

restructured government, public/private partnering, cross-sectoral working and multi-stakeholder engagement⁸.



Figure 1: UN Sustainable Development Goals

2.1.2 Food2030 Strategy – Framing the R&I for Food System Transformation

Food 2030 is the EU's research and innovation policy to transform food systems and ensure everyone has enough affordable, nutritious food to lead a healthy life. The ambition of Food 2030 is to achieve four key food and nutrition goals⁹ where the call for action to cities and regions lie within the priority of *innovation and empowering communities* (Figure 2).



Figure 2: FOOD 2030 Pathways to Action

Nutrition for sustainable and healthy diets (tackling malnutrition and obesity, personalising nutrition including for healthy ageing, sourcing and developing new protein alternatives to foster plant-based diets, improving food authenticity, traceability and safety systems, fostering consumption of forgotten crops for nutrition and resilience, supporting healthier and more sustainable diets with a focus on Europe and Africa).

Food systems supporting a healthy planet (climate-smart food systems that adapt to climate change, conserve natural resources and help reduce the flow of greenhouse gases into the atmosphere, boosting biodiversity, healthy ecosystems and soils, fostering environmentally friendly sustainable agriculture and aquaculture).

⁸ https://summitdialogues.org/wp-content/uploads/2021/07/Member-State-Dialogues-Synthesis_Report-2.pdf

⁹ Quote from: https://ec.europa.eu/info/research-and-innovation/research-area/environment/bioeconomy/food-systems/food-2030_en

Circularity and resource efficiency (achieving zero food waste, using unavoidable biomass and waste as a resource, reducing water and energy use by more efficient industrial food processes, more tailored and local food on demand, sustainable and biodegradable food packaging and reducing plastics in food).

Innovation and empowering communities (creating thriving innovation ecosystems and living labs that generate new business models and products, fostering sustainable and accessible food for all in towns, cities and regions, raising awareness and getting people engaged in food science and local food policy, supporting a place-based food sharing economy from farm to fork and fostering social innovation, developing data-driven food and nutrition systems that meet societal needs).

2.1.3 Urban Food System Transformation – What can be Done at Local Levels

“Modernising and transforming current urban food systems to become more competitive, resource efficient, healthy and inclusive is both urgent and complex, also because a one-size-fits-all food planning approach cannot be applied” (Food2030 Pathways for Action, 2020)

Along with this strategy, in 2020 the EC specified ten *R&I pathways*¹⁰ to take action to realizing the strategy. One of these R&I pathways “Urban food system transformation” which provides a comprehensive overview of systemic challenges related to urban food systems, as well as co-benefits on e.g. progressing SDG goals, barriers and lock-ins, enablers of change and proposed R&I action. The content of this pathway is summarized below:

Challenges:

The major challenges include the need for understanding of *how food is produced and consumed* to secure sustainable development and food security in urban and rural areas, especially in the face of climate change and socioeconomic inequalities. Related challenges include:

- The disconnection of cities from food production, with rural areas being the “breadbaskets” for the cities who consume almost 80% of all food resources.
- Changes in consumption and industrialized production, causing the accumulation of waste in cities.
- The dietary pattern of increased consumption of animal produce over the last decades, adding to greenhouse gas emissions and affecting climate change.
- Industrial processed food affecting obesity and lifestyle related disease.
- Intra-city challenges relate also to the social stratification and unequal access to nutritious food, including lack of food safety for vulnerable groups.

The systemic challenges as presented above are both related to demographic development as well as complex economic, socio-cultural patterns. Overall, the reliance on external markets and on long food chains create dependence on complex flows of

¹⁰ Food2030 Pathways for Action, EC 2020, Available at: <https://op.europa.eu/o/opportal-service/download-handler?identifier=86e31158-2563-11eb-9d7e-01aa75ed71a1&format=pdf&language=en&productionSystem=cellar&part=>

people and create vulnerability to supply chain shocks, fx related to climate change or pandemics. This creates the impetus for change.

Barriers:

The need for change is pertinent but taking action is stalled by lack of a coherent “infrastructure” to pave the change.

This includes not least a lack of capacity locally, both with regards to enabling innovation as well as lack of awareness and collaboration across the ecosystem actors, i.e. urban authorities, R&I actors etc.

The local governance in relation to food system is also weak, with limited practice and competence of integrating food in the urban and territorial planning.

The lack of food system thinking as mainstream in the horizontal and vertical governance sense, contributes to policy incoherence between sectors, actors and jurisdictions.

Enablers of change:

Given the systemic challenges and existing barriers to change, it is very important to look at the enablers of change, i.e. how can the needed *capacity in local innovation and governance* be fostered and stimulated. There is a continued need for cities experimenting, testing and building new approaches and concepts for how to transform the food system and bring new solutions into light. It is important to create change at many levels in order to address the connected, systemic challenges. The building blocks of efficient city action include activation of place-based innovation ecosystems (‘districts’), participatory and multi-stakeholder approaches, funding and political commitment as well as city network and working groups”:

- Data, monitoring and learning – Background research to promote actors’ commitment.
- City Governance, and -networks – Learning through collaboration on “how to” - build innovation ecosystems and apply living labs to generate new business models and products, raising awareness and getting people engaged in food science and local food policy.
- Multi-stakeholder engagement in policy process,
- Political commitment and Funding – partial funding by the city government would ensure a minimum of implementation and be key to give legitimacy to the policy-
- Mobilize innovation ecosystems as collaborative environments in *branded location* in which companies, entrepreneurs, and research institutions operate

(R&I) Innovation Scope

This analysis of challenges, barriers and possible enablers, contribute to informing the pathway elements, i.e. scope of innovation and action needed and supported. The overall themes of action and innovation scope relate to food production, supply and distribution, social and economic equity and governance and local frameworks. The break-down into areas of research and innovation helps to further scope the focus of innovation (see Table 1) and finally the examples given show to illustrate potential applications but is nowhere an exhaustive list. It is certain that many building blocks are in play, including social

¹¹ Food2030 Pathways for Action, pg. 33-34.

innovation, technical development and solutions, as well as new business models, but also policies and models for disaster management and resilience are needed.

Innovation (R&I) Scope for Urban Food System Transformation		
Dimension	Area of R&I	Topics and Examles
FOOD PRODUCTION	New forms of food production	Short food supply chains; greener food practices; reconnecting consumers and producers; local biodiversity, efficient use of resources and energy; reduction of packaging; food losses and waste
	Food sharing economy	Social innovation; 'collaborative consumption', where the shift from 'owning' to 'sharing'; consumers as co-producers of good and services; fx kitchen spaces, meal sharing, food business incubators, collaborative delivery services.
FOOD SUPPLY AND DISTRIBUTION	Green public procurement (GPP) for healthy and sustainable meals	Cities can use public food procurement policies to influence the organisation of food supply and distribution
SOCIAL AND ECONOMIC EQUITY	Access to affordable, healthy, culturally appropriate and sustainably produced food	Relationship between urban planning and food choices; Interdisciplinary collaborations between urban designers, planners, social, health and nutrition scientists and food producers and retailers
	Urban social resilience and nutrition security	Tailored solutions: social innovations, technologies, new or adapted business models, marketplaces, resilient supply chains, food-related social protection programmes for vulnerable urban populations
	Education and skill building	Technical and managerial skills and know-how, including curricula for students are needed for a society with informed citizen
GOVERNANCE AND ENABLING FRAMEWORK	Support of cities	Evaluation of local food system; Urban food policies; participatory goernance models and pratice; evaluation of instrument efficiency

Table 1: Urban Food System Transformation Innovation Topics

2.2 Urban living labs - Incubators of Innovation

Why use Urban Living Labs in the effort to empower cities and communities? As clear from the Food2030 Pathways for Action, the living labs have direct mention as instrumental to e.g. generate new business models and products, raise awareness and get people engaged in food science and local food policy and foster social innovation. Living labs have proven efficient to run this type of open and participatory innovation across a range of fields and urban development, i.e. Smart city, health, and social innovation. In connection with food, living lab methodology was central to Fit4Food2030¹² which pioneered food-labs and policy-labs to explore the topics of the Food2030 strategy. The upsides to Living labs have been known give better innovation results in line with user needs. On the other hand, living labs have a built-in openness and participation that gives some uncertainty, takes time and requires capacity in terms of facilitation.

In the following, we provide a closer look at the defining characteristics of Living Lab, the phases of setting up the lab and the overall working process. There are many practical guides and resources to guide the set-up and organization of work (e.g. Habibipour et.al 2018, Ståhlbröst et.al 2019, Bueren et. al 2017). The lab can be temporal or sustained over time as a more permanent innovation "infrastructure".

Urban living labs (LL) are increasingly used to facilitating local experimental projects of a participatory nature. The overall aim of living labs is to learn and experiment, by integrating processes of research and innovation. More specifically to develop, try out and test innovative urban solutions in a real-life context. European Network of Living Labs (ENoLL) defines Living Labs as:

¹² Fit4Food is a project within Horizon 2020 program and a reference project for Cities2030. The project outline and results can be accessed here: <https://cordis.europa.eu/project/id/774088>

“User-centered, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings¹³”.

ENoLL also lists five elements that must be present in a living lab: (1) active user involvement, (2) real-life setting, (3) multi-stakeholder participation, (4) multi-method approach, and (5) co-creation. LL grew out of a user-centered design tradition and the **user engagement** is one of the defining characteristics. To engage the user in the design of a solution or product makes sense in terms of it meeting the user needs. The **real-Life setting** is important as it provides the full context where a solution needs to work. In urban living labs this indicates their place-boundedness. **Multi-stakeholder participation** means typically cross-sector involvement of public, private and citizen partnerships. One way is to also identify the roles of user, utilizer, enabler, and provider – amongst the different stakeholders participating in living labs. These partnerships are more commonly referred to as public-private-people partnerships (4 Ps), various perspectives must be heard to qualify and improve the solution (e.g. citizens, universities, companies and public entities). **Multi-method** is also a characteristic of LL, in part reflecting also the multi-stakeholders and catering to different ways of achieving knowledge and engaging. The **co-creation** refers to the level of engagement of the users and stakeholders. It is important that users are not only “giving inputs” or being heard but take part also in the phases of ideation and prototyping.

These defining characteristics of LL have been further developed with a characteristic of *Urban LL* where the dimensions are given as *aims, activities, participants and context* and that provide a quite comprehensive approach to defining urban LL:

Living lab characteristics	
Dimension	Characteristics
Aims	Aimed at innovation
	Aimed at formal learning for replication
	For urban living labs: Aimed at increasing urban sustainability
Activities	Development (all phases of the product development process)
	Co-creation
	Iteration (feedback, evaluation and improvement)
Participants	Public actors, private actors, users, and knowledge institutes participate in LL activities
	all actors involved have decision-making power
Context	The living lab activities take place in real-life setting context of the innovation. In many urban living labs this is a territory or space-bound place

Table 2: Urban LL characteristics, adapted from Bueren 2017

The rationale of using LL as a way of developing and testing new solutions in urban development is that LL provide results on many bottom-lines: The solutions developed with the LL methodology become simply better adapted to the reality, which in turn makes them cost-efficient and also more legitimate as users feel ownership. Secondly, the focus on user-centered approach also ensures an upside on the perceived usability. In order to reap these benefits of LL it is of course important to be aware of when and how to apply living labs and to consider careful facilitation. Living labs are used across a range of fields for urban development, and empirical studies show that they are mostly used to

¹³ ENOLL, Short History of Living Labs- Research and Policy Context , 2019, available at: <https://issuu.com/enoll/docs/423662117-short-history-of-living-labs-research-an>

ideate and prototype and test new solutions and less for research and commercialization:¹⁴

A living lab needs to go through the overall development phases of setting up, planning, running experiments and evaluating results with the purpose of possibly sustaining the living lab over time. This requires of course commitment and allocation of resources as well as a clear purpose with the lab.

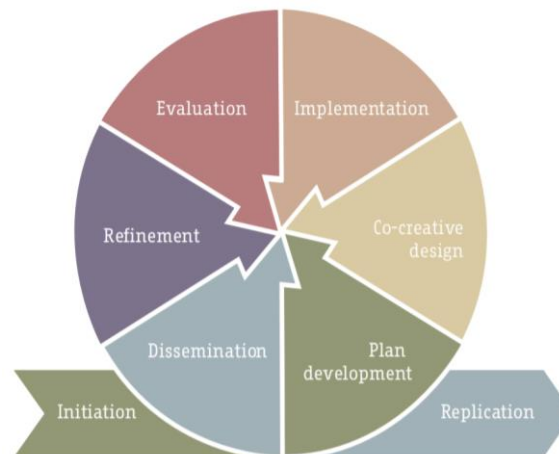


Figure 3: Living Lab lifecycle, Source: Steen & Bueren

The **initiation** of the Living Lab requires an understanding of the problem that needs solutions, i.e. *why* are we doing this and which problems are we addressing? In the case of Cities2030, the lab partners all have an initial reflection on taking action on food system transformation but with varying documentation and confirmed areas of interest and potential impact.

The task of **plan development** includes setting a shared vision for the LL, setting the right team of capabilities, agreeing on how to run the processes and facilitate the development and managing the development process.

The **co-creative design** of solutions in a LL context requires careful consideration of how to collaborate in equal networks, how to break free from the usual roles and thinking, how to engage for maximum contribution and effect and finally working with accept of the open-ended nature of LL. Co-creative design is a highly specialized field with many methods and considerations. The LL can intend to understand and apply to the best capacity only but also very consciously build and ensure this important facilitation of the LL processes.

Implementation of an innovation or a solution is putting it into practice in a real-life setting after the experimental co-creation phase of development (ideating, testing, prototyping). It is an important and quite natural step to implement the solutions for real impact, however it requires several considerations.

Evaluation is a core component of the living lab approach. This serves to assess whether the goals and ambition was achieved both functionally in terms of performance but also

¹⁴ This benchmark and classification of 90 living labs and is described in "Urban Living Labs, a Living Lab Way of Working, 2017 Sten & Bureen, available at https://www.researchgate.net/publication/318109901_Urban_Living_Labs_A_Living_Lab_Way_of_Working/link/595a2f97aca2728a137aa467/download

in terms of questioning the innovation or its aim itself: *“Is this the right innovation given the aim or the problem it intends to solve? Does it have many, perhaps unexpected side effects? Will it be replicable? If so, under which conditions and at which scale?”* (Steen & Bueren 2017)

Working with LLs is evolving as a common tool for urban development because it carries several benefits and has good chances at succeeding with innovation. On the other hand, it is important to be realistic and conscious about the risk and requirements as well; for example LL experiments can fail and often are not a short-term solution. Also, it takes capacity to run and facilitate the LL and there needs to be a clear value creation for sustaining and value proposal for the engagement of stakeholders.

Living labs as incubators of innovation - upsides and challenges	
Benefits and strenghts	Risks and requirements
High potential for innovation (thanks to the multidisciplinary and multi-stakeholder approach)	Not a direct path to a short-term solution
High potential for systemic learning and replication of innovations	Experimentation entails failures
More sustainable solutions thanks to the integration of all stakeholder requirements	Needs large investments in terms of coordination, organization, management and supportive tools
Closed gap between product production and uptake	Successful stakeholder participation requires particular expertise
Reduced risk of policy and business failure	Successful co-creation requires a particular mindset
Better match with local, cultural and institutional contexts and creativity potentials	Working according to the living lab approach may require actors to abandon their usual culture and/or way of working
Better utilization of existing knowledge and inventions	

Table 3: LL Benefits and Risks, adapted from Steen & Burren 2017

2.3 City Networked Action – Learning from Each other and Using Reference Frameworks

“Recently (and Europe is very new to this) ‘city governments (and territorial communities) are emerging as key actors in fostering more sustainable food systems, although they usually have no clear mandate. In fact, the institutional and operational responsibility has not been clearly assigned and there are few regulatory tools to implement policy at local level” (Food2030 Pathway for action, 2020)

As clear from the Urban Food System Transformation pathway (2.1.2), there is a need for support of cities and to address the weak local governance of food systems. Networks of cities and horizontal governance, i.e. coming together and learning *as* cities is central to the pathway.

Cities are coming together in various coalitions of change and networks of practice and coalitions with the aim of learning from each other and scaling the impact of their efforts. There are many collaboration platforms and networks today, including e.g. C40, Food Places, Let’s food cities, Fledge etc.¹⁵ Each with a different mix of collaboration and engagement, scope and reach, but they share the ambition to help cities and regions grasp the potential and guide them through making systemic change actionable – in a connected way.

To have the reference of a network or standards on how to approach change is valuable for cities more reasons. Firstly, it provides a “do’s and don’ts” of the learnings of others, and it is a quick way to get started on a complex topic. Secondly the credibility and value

¹⁵ Various declarations are listed on MUFPP site: <https://www.milanurbanfoodpolicypact.org/resources-page/>

of a “brand”, i.e. an established approach can help to create trust and interest in cities looking to embark on food system action. On the other hand, every time a city uses the framework for action, new cases and application experiences are generated, which again helps to both grow the platform but also diversify it in topics.

The Milan Urban Food Policy Pact (MUFPP) has especially gained traction with more than 200 cities committing to its declaration and using the platform for implementing change, not least through an indicator framework that scopes out the areas of action and impact. A different but complementary platform is the City region Food System platform (CRFS) which provides a process of discovering the opportunities for action and how to design initiatives to seize them as well as an indicator framework.

The platforms are not mutually exclusive but rather complementary in setting goals and pursuing pathways of action in a networked and informed way. Table 4 provides a simple comparison of these two frameworks in terms of the indicators and processes.

Comparison of MUFPP and CRFS frameworks		
	MUFPP	CRFS
Areas of Action	Food governance	Food Governance
	Sustainable diets and nutrition	Reduce Vulnerability and increase resilience
	Social and economic equity	Social Sustainability and Equity
	Food production	Economic Sustainability
	Food supply and distribution	Urban Rural integration
	Food waste	Environmental sustainability
Process guide	1. Preparatory thinking and key questions	1 Getting prepared
	2. Developing indicator selection criteria	2: Defining CRFS
	3. Final selection of indicators	3: Vision
	4. Working with the indicators	4: CRFS Scan
	5. Challenges of using the MUFPP framework	5: CRFS Assessment
	(Signature of declaration)	6: Policy support and planning
	(Regional fora collaboration)	7: Governance

Table 4: MUFPP and CRFS framework dimensions and process

The MUFPP has 6 dimensions and a total of 44 indicators. The guiding steps to using it are quite easy to approach and oversee with simple overall guidance. The CRFS has 6 dimensions and a total of 210 indicators and provides for a more detailed process with guiding research questions as well as coupling dimensions with goals, outcomes, impact areas and indicators. This framework is more demanding not least because the city region must be firstly defined as a functional unit rather than clear geographical borders like cities have. Both frameworks are in alignment with the Food2030 pathway for urban food system transformation (see table 1).

In the following sections, these two frameworks will be further introduced, with the purpose of how they inform the innovation scope for impact of local food system dynamics.

2.4 Milan urban food policy pact (MUFPP) – Indicators as Innovation scope

MUFPP is an international agreement of Mayors and currently signed by more than 200 cities. By signing the declaration, cities commit to implementing actions to the end of a more sustainable and equitable food system, with focus on areas that the city can concretely influence along the dimensions. The declaration lists the reason, opportunity

and obligation for cities to make a difference as both centers of economic, social and cultural impact but also as managers of vast public funds and influence on i.e. infrastructure and spatial planning.

Signing the MUFPP declaration, specifically cities commit to the following:

We will work to develop sustainable food systems that are inclusive, resilient, safe and diverse, that provide healthy and affordable food to all people in a human rights-based framework, that minimize waste and conserve biodiversity while adapting to and mitigating impacts of climate change;

We will encourage interdepartmental and cross-sector coordination at municipal and community levels, working to integrate urban food policy considerations into social, economic and environment policies, programmes and initiatives, such as, inter alia, food supply and distribution, social protection, nutrition, equity, food production, education, food safety and waste reduction;

We will seek coherence between municipal food-related policies and programmes and relevant subnational, national, regional and international policies and processes;

We will engage all sectors within the food system (including neighboring authorities, technical and academic organizations, civil society, small scale producers, and the private sector) in the formulation, implementation and assessment of all food-related policies, programmes and initiatives;

We will review and amend existing urban policies, plans and regulations in order to encourage the establishment of equitable, resilient and sustainable food systems; 6. We will use the Framework for Action as a starting point for each city to address the development of their own urban food system and we will share developments with participating cities and our national governments and international agencies when appropriate; 7. We will encourage other cities to join our food policy actions. (MUFPP Declaration)

The declaration is followed up by tools for action to set goals and track the progress. The MUFPP indicator framework goes on to detail overall areas of possible actions as well as indicators for each. This framework in effect proposes what the cities set out to do and provides thereby an overview of the scope and challenges for innovation. In table 2 the dimensions and related actions and challenges are shown:

MUFPP Scope of Action and Innovation		
Topics	Purpose	Action scope and innovaton challenge
Food governance	<i>Ensure an enabling environment for effective action in cities</i>	Facilitate collaboration across city agencies and departments; Strengthen urban stakeholder participation, identify and support grassroots initiatives; develop or revise urban food policies and plans; develop a disaster risk reduction strategy
Sustainable diets and nutrition	<i>Promote sustainable diets - healthy, safe culturally appropriate, environmental frindely, righs-based</i>	Address diseases associated with poor diets; develop sustainable dietary guidelines for urban environment; explore instruments to promote sustainable diets in cities and public facilities; commit to achieving universal access to safe drinking water in urban and peri-urban areas.
Social and economic equity	<i>Address inequality and poverty related to food systems</i>	Use social protection systems such as food banks, community food kitchens etc.; provide access to healthy food for all citizens; encourage and support social and solidarity activities; promote networks and support grassroots activities; promote participatory education, training and research
Food production	<i>Strengthening sustainable food production rural-urban linkages,</i>	Promote and strengthen urban and peri-urban sustainable food production; apply an ecosystem approach to guide land use planning and management; Provide services to food producers in and around cities; support short food chains; improve waste and water management and reuse in agriculture.
Food supply and distribution	<i>Ensure sustainable, safe, fair, continuous and efficient supply and distribution of food in cities</i>	<i>Review and strengthen food control systems; Ensure seasonal and local food consumption by linking peri-urban and near rural areas transport and logistics; develop green public procurement and trade policy to facilitate short food supply chains; support for municipal public markets.</i>
Waste	<i>Reduce food waste and adapt circular economy</i>	Assess and monitor food waste; raise awareness of food loss and waste; collaborate with private partners along with research; Recover and redistribute food

Table 5: MUFPP Implied Innovation Scope

As is clear from the table the innovation scope is broad, yet connected. The levers span from policies, over public resources to industrial and research collaborations as well civic participation. The MUFPP resources, i.e. the full declaration, the indicator framework and guide to using them are available on the webpage <https://www.milanurbanfoodpolicypact.org/>.

2.5 City region food Systems (CRFS) - Urban-Rural Relations as Innovation Scope

A lot of focus is on cities as they are the natural centers of economic and political power as well as host to more than half of the world’s population. But, ‘Urban food system’ is not to understood literally as being marked by city limit sign, and it is recognized both within the MUFPP and in the Food2030 strategy that urban-rural interlinks are important as is the reconnection of food production and consumers. The balanced development of rural and urban areas is also important as is securing equitable smallholder food production. The city region food system approach addresses this view on the local city regional food system, which is a functional/ territorial category rather than political-administrative unit.

CRFS is different from the MUFPP in that it is an *approach* to development, rather than being a specific commitment and defined network. The CRFS approach has been promoted by Food and Agriculture Organisation of the UN (FAO), and concerns exclusively sustainable food production through strengthening of rural-urban linkages. It now forms part of FAO’s “Urban Food Actions Platform” which is fully aligned with the topics in MUFPP¹⁶. Thus, the CRFS approach and toolkit can in practice be considered a deep-dive into the Food Production and Ecosystem management dimension of the MUFPP, rather than a stand-alone framework.

¹⁶ <https://www.fao.org/urban-food-actions/areas-of-work/en/>

A city region food system does not have clear boundaries the same way a city does. Rather than relating to administrative borders, the CRFS is defined functionally, through local food system dynamics and connections. “A CRFS” is therefore an analytical construct derived from grounded analysis of a territory. In 2015, the Cities Regions Food Systems Alliance provided this definition for CRFS:

“The complex network of actors, processes, and relationships to do with food production, processing, marketing, and consumption that exist in a given geographical region that includes a more or less concentrated urban center and its surrounding peri-urban and rural hinterland; a regional landscape across which flows of people, goods and ecosystem services are managed”.

The basic premise of the city region food system is that by enhancing the interconnectedness and complementary development of urban and rural areas it is possible to address some of the global food system and nutritional challenges and contribute to improved community livelihood and city regional resilience. Based on case studies (Dubbeling et. al, 2016) examples of important and valuable interlinks were identified:

- Food produced in peri-urban areas and rural hinterlands guarantees supplies for both urban areas and their rural surroundings, while urban areas supply the markets upon which agricultural livelihoods depend;
- Rural watersheds supply potable water to urban areas and provide irrigation for urban, peri-urban and rural agriculture. Sustainable forms of urban water management can provide financial incentives for the preservation of such (agricultural) watersheds;
- Food loss and waste can be prevented, reduced, and managed, including through the recovery and redistribution of safe and nutritious food for human consumption along the food supply chain from production to consumption, spanning both rural and urban territory
- Organic and agricultural waste resources produced in urban and rural areas can be used to generate energy and fertilisers, which are used in urban and rural areas respectively;
- Preservation and sustainable management of agricultural lands in rural and peri-urban areas can help to enhance flood retention or mitigate increasing temperatures, thus reducing the climate change vulnerability of both urban and rural areas.

Summarizing the proposed benefits of CRFS on economic development, environment, health, food security and governance and culture (Jennings 2015), CRFS is advocating a framework where these interlinks are strengthened through deliberate governance, and policies where food system planning is explicitly territorial:

¹⁷<https://www.fao.org/fcit/fcit-home/en/#:~:text=The%20concept%20of%20city%20region,its%20surrounding%20peri%2D%20urban%20and>

Proposed benefits of city region food systems	
Topic	Proposed Benefits
Food security	Increased livelihood resilience for small-scale producers
	Reduced food prices for urban consumers
	Increased resilience of urban food supply against shocks
Economic Development	Regional economic growth
	Increased rural incomes and jobs
	Economic vitality, entrepreneurship and innovation
Environment	Opportunities for circular economies, including reducing food waste and loss
	Increased local agroecological diversity
	Increased recognition and valuing of ecosystem services
	Lower Co2 emissions
Health	Increased knowledge about food and nutrition amongst urban dwellers, resulting in more healthy diets
	Increased availability of, and access to, nutritious food
Governance and culture	Promoting a food culture
	Integrated ('joined-up') policy and action
	Greater participation in and transparency of the food system

Table 6: Proposed benefits of CRFS, adapted from Jennings et. al 2015.

The innovation scope of CRFS is closely linked to realizing the proposed benefits in Table 6. Promising areas of innovation and enterprise include new technical innovations to connect farmers with markets and increase information and transparency, as well as new forms of social innovation, such as community funding and ownership, cooperative enterprise, and farmer controlled enterprise. Studies document that short food supply chains positively impact innovation and the entrepreneurial opportunity herein¹⁸ (Mastronardi, 2015).

Innovating within CRFS framework is highly cross-sectoral and cross-disciplinary endeavor. It is a broad-spectered innovation scope, with both entrepreneurship and commercial opportunities as well as social innovation and participatory public governance. To pursue CRFS and the entailed proposed benefits, a framework of indicators, as well as process to discover and implement measures and collaborations to increase and strengthen urban rural linkages is available. This toolkit is freely available via the FAO Urban Food Actions Platform.¹⁹

Parts of the CRFS toolkit are included below as table 7 to provide a further scoping of the areas of action and hence opportunities for innovations. The full scope of indicators are likewise available with guidance.²⁰

¹⁸ Complete assessment of each available as Annex in Jennings 2015.

¹⁹ <https://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/>

²⁰ <https://www.fao.org/3/i9255e/i9255e-CRFS-Indicator-Framework.pdf>

CRFS Overarching Objectives and Outcomes		
	Objectives	Outcomes
Social Sustainability and equity	Improve health and well-being and increase access to food and nutrition	All rural and urban residents have access to affordable, sufficient, nutritious, safe, adequate and diversified food that contribute to healthy diets and meet dietary needs
	Improve social conditions for workers	All workers in the food system have healthy and safe working conditions
	Build local food culture & heritage	The city region is known for its food culture, food heritage and sense of identity
	Ensure acceptability of food provision for all city residents	The city is not for a readily available diversity of food provision to meet the wide range of preferred dietary habits of its citizens
Economic Development	Increase local economic growth and generate a diversity of decent jobs and income	A vibrant diverse and sustainable regional food economy retains the 'local food euro'
		Fair and decent (formal and informal) jobs and income opportunities exist for small-scale producers workers and businesses throughout the food system.
Urban-rural integration	Strengthen the city region food production and supply system	city region food production capacity is optimised
		Efficient and diverse agricultural supply and value chains connect the city with food providers in the city region providing access to a wide range of market opportunities
		Flows of food, nutrients, energy and other resources and services connect urban and rural areas
Environmental sustainability	Improve protection and management of ecosystems and environmental resources	Agro-ecological diversity is protected and promoted
		Urban and natural ecosystems are well managed
		greenhouse gas emissions in the food system are reduced
Food Governance	Improve horizontal and vertical governance and planning	Food system policies, legislation and strategies exist and are integrated into other policies, planning processes and programmes
		Participatory governance structures are cross-jurisdictional, cross-sectorial, and multi-stakeholder
		Food policies enhance social inclusion and reduce inequalities
		Food policies enhance environmental sustainability
Vulnerability & resilience	There is increased capacity to deal with shocks that impact on the food system. Urban planning processes include food security and resilience. The agricultural resource base is protected and lessens dependence on distant food supply resources	

Table 7: Adapted from CRFS Indicators, CRFS Toolkit, FAO 2018

2.6 WBSCD – Business Innovation Perspective

“The food and agriculture sectors have underinvested in and underleveraged nature-based solutions, technology and innovation particularly in ways that are inclusive, climate smart and regenerative” (WBSCD 2019)

The World Business Council for Sustainable Development (WBCSD) is a CEO-led organization of over 200 leading companies. It was established in 1995, as a platform for business to respond to sustainability challenges. Industry is an important partner in building and scaling solutions for sustainable systems, and they are indispensable in an innovation ecosystem perspective and funding capacity. This perspective is relevant to define the innovation scope. In the report “CEO Guide to Food System Transformation” (2019) seven pathways are proposed, differentiating the direct pathways from the enabling, transversal factors.

WBSCD Pathways for Sustainable Food System Transformation		
	Pathway	Solution Areas
Direct	Transform agriculture while restoring the environment	Develop transformative inputs for nutrition, nature and climate (seeds, feeds, fertilizers)
		Deploy and scale solutions: - Circular nutrient management - Climate-smart agriculture - Regenerative practices and rebalancing seeds and crop diversity - Technology and finance innovation
		Rebalance production to optimize crop mix based on local conditions and nutritional value
		Generate value by investing in approaches that: - Deliver natural climate solutions - Improve biodiversity and create nature-based solutions - Maximize bioeconomy benefits
	Enhance equitable distribution of value	Introduce cost-effective technology for on-farm data management and to-farm traceability
		Leverage and scale insurance and finance mechanisms
		Build capacity with smallholders for the adoption of locally appropriate new practices and technologies
		Create sustainable and longer term contracting practices to share value equitably through to farm
	Shift diets to be healthy and sustainable	Assess and strengthen resilience in supply chain - Climate resilience - Gender equity - Hunger alleviation
		Shape demand through product formulations and distribution - Affordability and accessibility - Locally relevant, highly nutritious and diverse ingredients
		Support consumers and adjust portfolio mix to enable dietary choices that are: - Healthy (e.g., low sugar/salt, more micronutrients) - Sustainable (e.g., sustainably reared livestock) - Diversified (e.g., nuts, fruits, legumes)
	Minimize food loss and waste	Optimize protein mix balanced with sustainably grown plant and animal proteins
Set goals, measure and use technology across the supply chain to reduce food loss and waste - Including end-of-life product management practices		
Improve storage and supply chain infrastructure (especially cold chain) and reduce supply chain inefficiencies - Including circular bioeconomy practices		
Enabling	Build end-to-end transparency	Improve date labeling and portion size data, driving consistency and clarity for consumer behavior change
		Develop technology-enabled end-to-end traceability to track comprehensive and consistent data across the supply chain
		Test and scale distributed ledger technology that shares, aggregates and analyzes data to strengthen value chain linkages
	Accelerate policy and financial innovations	Create cost-efficient food testing and monitoring solutions - Improve food safety - Reduce food loss and waste
		Leverage the momentum of global events with specific policy asks to accelerate action from: - Basic expectations, such as land rights, - New policy frameworks - Coherence across agency agendas
		Create and scale financial instruments to manage risks, improve flows and link cost of capital to improved outcomes
	Launch new business models and value chain collaborations	Develop financing approaches for smallholder adoption; de-risk the changes
		Reshape business, portfolio and value chain for resilience and advantaged performance
		Launch cross-value-chain collaborations with innovative economics to de-risk innovations, scale solutions faster, and reach the last mile (both farmer and consumer) • Include external
		Include externalities in financial performance assessment to reflect true value
		Use the circular bioeconomy to alleviate resource supply risks, shift from fossil-fuel and non-renewable resources to sustainable, renewable biomass, repurpose agricultural waste and recycle nutrients

Table 8: Adopted from WBSCD, 2019

he transversal solutions are also echoing the Food2030 in terms of data and transparency, new business model and cross-value-chain collaboration. Businesses have a clear interest in being part of the solution and plying their strengths into the transformation. They have other opportunities in e.g. market scaling and internal innovation capacity. These pathways are defined as *business-led* with a perspective to build solutions, work across value chains to achieve breakthrough solutions, shape consumer preferences and lifestyles and engage communities in solutions that address poverty and build both capacity and resilience. Business has a big interest as the food system transformation represents a huge potential for business value creation. For businesses it is about making money today and tomorrow, but businesses in the food industry have the same long-term interest in preserving the production ability and are

vulnerable also to long value-chain-dependencies as well as the shocks and disruptions of markets and distribution, e.g. related to pandemics or climate.

2.7 Conclusion

This chapter has intended to set the scene for food innovation – the urgent need for food system transformation and the role of cities and the rural-urban links given in the specific city region approach. As shown, the quest for change is articulate at all political levels, and there is broad agreement that solving the crisis of the current food system can be used for much larger impacts of social, environmental and economic opportunity in the local ecosystems. The innovation scope is very broad and represents both opportunities for business, social innovation, new partnerships, new governance forms and public services. To sum up how these elements come together in shaping both the opportunity, frameworks and topics of CRFS innovation scope:






Summary of Levels of Framing of Food System Innovation						
	Who	What	Actor	Instrument	Focus	Proposed Innovation Scope
	UN	SDG	Nation states	Commitment and advocacy	How innovation can progress on SDG	Governance and policy framework Partnerships and community engagement Health, circularity, equitable production, food waste, resilient supply chains, data, tech.
	EC	Food2030	R&I community in EU	R&I Framework and Incentive	How Urban Food Systems can transform through R&I	
	Mayors	MUFPP	Cities	Commitment and action framework	How Cities can take action	
	FAO	CRFS	City and Regions	Process and action framework	How city-regions can take action	
	WBCSD	Vision2050	Business	Advocacy and pathways	How businesses can take action	

Table 9: Summary of Urban Food Innovation Scope

3 Cities2030 CRFS Labs – The Project Approach

Cities2030 is one of several international collaborations with the aim of creating knowledge and blueprints on how cities can take action, address the food system challenges with a lens of opportunity for innovation, prosperity and resilience and applying Living lab as instrument. In this chapter we will introduce the specific Cities2030 innovation action and the approach to empower cities and communities in the food system transformation. The CRFS labs are inspired by the living lab methodology and are central in the overall Cities2030 project as the places of experimenting and validating CRFS driven policy and innovations. The CRFS labs are powered by other project elements and build on a foundation of knowledge and actor engagement. This knowledge about the local food systems informs the local stakeholders on challenges, threats and opportunities to be reflected in the lab activities. Finally the labs’ results also feed into project-wide mechanisms such as the policy observatory and blueprints for policy, as well as the CRFS alliance of food stakeholders and the emerging catalogue of CRFS innovations.

3.1 CRFS Lab – A Themed Living Lab with Innovation and Policy Focus

The CRFS labs is the Cities2030 application of living labs. They are scoped as hubs to mobilize inclusive innovation ecosystems, raising awareness and getting people engaged in food science and local food policy, and fostering new business models and innovations as well as utilizing the levers of policy and public infrastructure to enable an CRFS enabling environment.

The CRFS themed Living lab is piloted by Cities2030 and will be important to test and validate the approach.

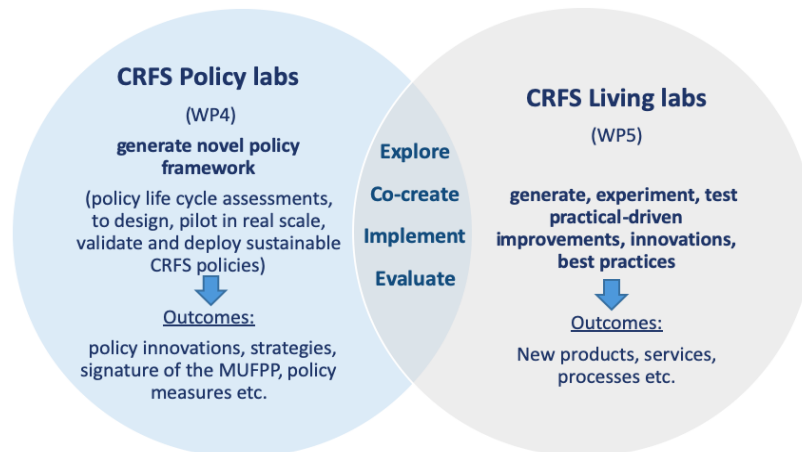


Figure 4: CRFS Lab Concept

Compatible with both established concepts and the Cities2030 pilot cities’ expectations to working with CRFS themed Living labs, CRFS Labs is an umbrella term for multi-sectoral and multi-disciplinary collaboration that takes place to develop different types of innovation and increase the ability to tackle complexity and challenges in different environments. The goal of the CRFS Labs is to generate CFRS knowledge and make an impact by developing innovation in CRFS practices - new products, services, processes (CRFS Living labs) and sustainable policy frameworks (CRFS Policy labs) on a small scale and to find solutions that can be implemented on a larger scale.

As presented in chapter 2 the CRFS innovation framework is closely linked to policy and deliberate governance of food system in a territorial perspective. In this emerging stage

of sustainable food system transformation the importance of policy as an enabler of new innovation is crucial.

CRFS labs involve different CRFS stakeholders and actors and are oriented towards different objectives: CRFS Policy labs towards new food-related policies, while CRFS Living labs towards the experiments towards testing and implementing new solutions/ services. Both strands have several common features - both types of labs provide co-innovative, user-centered, open and collaborative innovation ecosystem, in which multiple stakeholders and actors of CRFS using multi-method approach jointly identify ideas or challenges on any CRFS level (local, city, regional, national, international) and generate, produce, test, develop and co-create innovation processes and solutions for real life communities and settings.

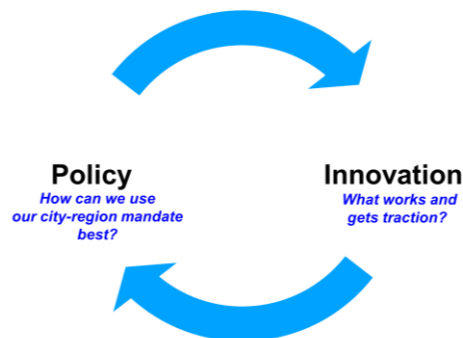


Figure 5: CRFS Labs Innovation Dynamics

Though different instruments (and processes), the policy and innovation are mutually reinforcing of each other, and related in practice. To create enabling policies it is often necessary to “see the proof” to get support for an idea in the political system. On the other hand policies can shape opportunities - this ping-pong relation is illustrated in figure 7²¹.

3.2 Place-based Pilots – Different Topics and Starting Points

There are 40 organizations engaged in the Cities2030 as executing project partners. Partner types include city and regional administrative entities; university and knowledge partners with different expertise in food system; tech transfer and business modeling partners with experience in pre-market acceleration, technology and digital solution partners.

Fifteen pilot CRFS labs will initially be implemented across Europe. They are place-based pilots of experiment-based innovation in policy and solutions for food system transformation. All pilots work from their particular starting point towards goals for local food system changes. Some cities are experienced at working with food as part of their development strategy, while other cities are rather new to the idea of living labs. Therefore, each pathway is unique and adapted to the city-specific starting point and context. But the steps that are taken by all labs follow a shared approach, as specified in the “Innovation Process”.

²¹ For a detailed description of the policy innovation process, refer to the project’s deliverables 4.2 Policy Guidelines and facilitators and 4.3. Pilot Policy Action Plans available on the project’s website.

Cities2030 pilot partners - city or region according to their specific needs of CRFS, may develop the CRFS labs that integrate both - Policy and Living labs elements, and can focus on different scale, i.e. practical driven innovation development or on systematic long-term solutions at the policy level (policy assessment, funding, legislation, improvements in the decision-making process, guidance, values, etc.).

1. City Region of Vejle, Denmark
2. City Region of Vidzeme, LAT
3. City Region of Brugge, BE
4. City Region of Harlem, (NL)
5. City Region of Trodos (CY)
6. City Region of Seinajoki, FI
7. City Region of Vicenza, IT
8. City Region of Velica Gorica, CR
9. City Region of Quart de Poblet, ES
10. City Region of Iasi (Rom)
11. City Region of Bremerhaven, DE
12. City Region of Murska Sobot (Slo)
13. The Lab of Agrotopia, BE
14. The Lab of CItag in Marseilles, FR
15. The Lab of Pollica, IT



Figure 6: Map and list of Pilot CRFS Labs

The table below indicates that partners are planning to apply different approaches for CRFS labs development - to integrate both - Policy and Living labs or to develop either Living lab or Policy lab for particular thematic areas within the CRFS innovation scope.

	P3 BRUG, BELGIUM	P5 IAAD, TURKEY	P8 VEGO, CROATIA	P12 INTO, FINLAND	P15 BRH, GERMANY	P18 QUAR, SPAIN	P32 VIZ, ITALY	P23 FFI, ITALY	P24 VPR, LATVIA	P28 IASI, ROMANIA	P40 CITAG, FRANCE	P10 VEJLE, DENMARK
Production		L&PL	LL	L&PL	LL	L&PL	L&PL	LL	LL	LL	L&PL	
Processing	LL	L&PL							LL	LL		
Distribution	LL	L&PL			LL				LL	LL	L&PL	
Markets		L&PL	PL	L&PL	LL	L&PL	L&PL	L&PL		LL		
Consumption	LL	L&PL		L&PL	L&PL	L&PL		L&PL		PL	L&PL	
Waste		L&PL	PL	L&PL	LL	L&PL		L&PL		PL		
Security		L&PL			LL					PL		
Ecosystem services		L&PL	PL		LL			PL	L&PL	PL	L&PL	
Livelihood, growth		L&PL		L&PL	L&PL					PL		
Inclusion, equality	LL	L&PL		L&PL			L&PL	L&PL	L&PL	PL	L&PL	
Policy/decision making		L&PL		L&PL	L&PL	L&PL	L&PL	PL	L&PL	PL		
Other		L&PL										L&PL
Don't know yet	PL						L&PL					

Table 10: Cities2030 partners are planning to apply different approaches for CRFS labs development

Vidzeme region (Latvia) within the Cities2030 addresses the **Green Public Procurement issue in public catering services** provided by municipal organisations. Currently a lot of public procurement is organised based on the cheapest price, so also import production is provided in the catering. The aim is to integrate more local production in those procurement. Within the CRFS Labs the Vidzeme region addresses municipalities and farmers/producers/ retailers to understand in what ways their collaboration could be strengthened (CRFS Living Lab) and promote these solutions and their application to other territories, integration of aspects into the laws and policies (CRFS Policy Lab).

The focus of IASI (Romania) is on **increasing urban sustainability**. Planned activities of CRFS Living Lab is the development and co-creation (feedback, evaluation, improvement). Like in the more developed countries of Western Europe, the need to shorten the agri-food sector supply chains and, implicitly, the revival of traditional domestic agriculture are becoming more and more stringent in present day Romania. Both issues are driven mainly by the changing attitudes and mindsets of end consumers, on issues such as nutrition, sustainable agriculture, and environmental conservation. The need to implement concrete actions in the medium and long term, aimed at raising the awareness/re-education of end consumers on the acquisition and consumption of local agri-food products, can also be noted at present.

The focus of CRFS Labs of Seinäjoki (Finland) is on the Healthy Kids of Seinäjoki, their nutrition and empowerment and engagement of communities and stakeholders around them.

Bremerhaven (Germany) develops the CRFS Policy lab to strengthen the resilience of CRFS by enhancing the capacity of local governments and food stakeholders to address the threat of the global nutrition crisis (overweight, obesity and diet-related disease, undernutrition). The food systems need to be repositioned from just supplying food to providing high-quality diets for all. More emphasis must be given to positioning agricultural growth as a way to improve diet quality, rather than merely delivering sufficient calories. This requires policy initiatives to encompass trade, the environment and health, which leverage the power of the private sector and empower consumers to demand better diets. For more information about each of the CRFS labs in Cities2030 please visit the project website.

In the light of these examples, it is more important than ever to align two levels: On the one hand, the issues that CRFS Labs propose in terms of innovation; on the other hand, the trend scenario of regional and/or local scale policies affecting the food system. Therefore, in implementing the work of the CRFS Labs, continuous feedback between the two levels is fundamental in order to ensure coherence between the ambitions of the CRFS Labs and the territorial and economic management and of the food system.

3.3 Innovation Process - Running Experiments in CRFS Labs

The CRFS labs are implemented over the course of the four-year period, but with mobilizing the stakeholders, preparing the overall plan, building skills through training and engaging in the analysis of defining the CRFS in accordance with the explorative analysis.²²

The labs address the experiments through method in accordance with the open and participatory approach that is defining of living labs - and informed by the CRFS innovation scope as presented in chapter 2. This programmatic approach to building new knowledge, new policies and new solutions is essential for Cities2030 as a way of creating broader impact and uptake by many more cities than those immediate partnering and piloting the program. As shown in figure 8, developing a CRFS Lab, is informed by design thinking approach (“double diamond”) with alternating divergent and convergent stages in the solution making and iterative flows:

²² See section 2.5 for a description and definition of CRFS and refer to the CRFS toolkit for walkthrough of the process to define CRFS.

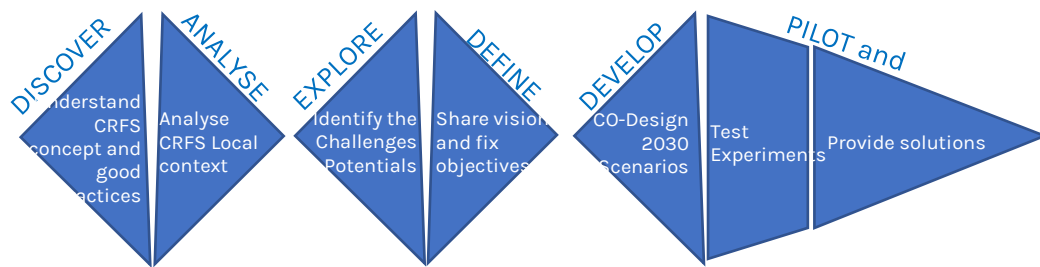


Figure 7: Pilot CRFS Lab Work Flow

- Firstly, an divergent and explorative process is to **DISCOVER CRFS**. This means to study, understand and explore the CITY REGION FOOD SYSTEM (CRFS) concept and practices and impact of developing CRFS, in particular the mutual value for region and city development.
- Next is to **ANALYSE CRFS** context locally. A CRFS is a functional entity that has no formal borders and depend on local context. The toolkit and framework for CRFS is applied to describe and define it.
- With this definition and description, the next step is to open up and **EXPLORE** challenges and potentials in relation to the CRFS in question.
- Based on this insight (the rationale + the local assessment) it is possible to narrow in and **DEFINE** the vision and objectives to improve sustainability in the CRFS in question.
- With the specified vision and goal, it is next to **DEVELOP** and co-design 2030 scenarios, notably plan strategic objectives, actions, design solutions.
- They inform concretely the **PILOT and DELIVER** test experiments in real life and provide CRFS stakeholders with innovative solutions .
- EVALUATE Learnings and innovation.

Over the course of the project lifetime, the CRFS labs will have carried out local analysis of the CRFS and identified a range of opportunities for innovation. They have aligned the interests with both the political reality of the city-region in terms of development agenda, priorities and resources to implement. And with s the local ecosystem of food system stakeholders whose involvement directly shape the solution and indicates areas of traction and market/ user needs.

3.4 CRFS-Lab Results and Learnings Feeding into Project-Wide Knowledge Loop

The CRFS Labs are “powered up” by supporting measures in the form of analysis, capacity building and digital data models and tools for mapping etc. And the results from the labs also feed into a larger loop of knowledge creation in order to validate the CRFS approach to Urban food system transformation. And to validate the CRFS labs’ ability and efficiency as instruments to foster change. This loop is illustrated in figure 10.

In this model, policy and living labs are horizontally connected, as “*Sustainable Evidence-based Structured Methodologies*” which refers to the labs as instruments to ideate, test and develop solutions as tangible evidence of what works.

The policy results from labs feed into i.e. CRFS policy blueprints and tap into/ help to build the CRFS observatory. The solutions (product, services etc.) feed into e.g. mobilization and engagement of stakeholders in the CRFS alliance:

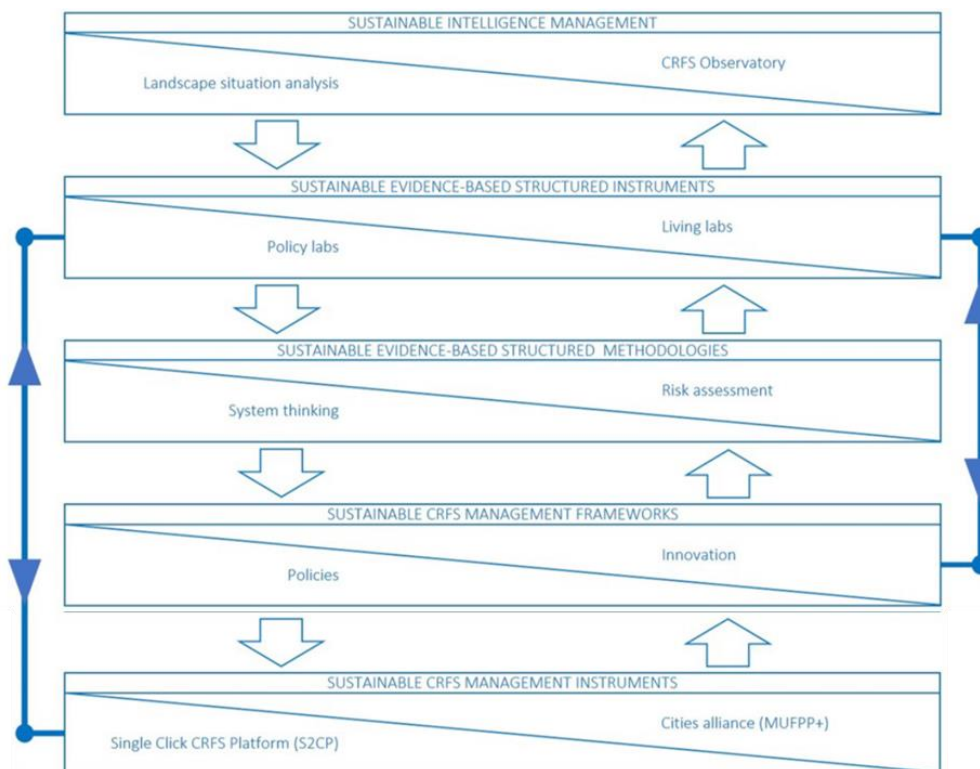


Figure 8: Cities2030 Knowledge Creation Loop

3.5 Conclusion

Cities2030 approach is a direct address of a range of the elements to create an “enabling environment” combining multi-stakeholder collaboration, capacity building on both local governance and policy-level as well as on innovation capacity in the CRFS labs. The project also addresses the importance of data as enabler of transparency and advocacy of opportunity. The project as a whole tackles a tricky strand of the city action scope, in looking at the ill-defined city region category. This emerging and grounded concept requires efficient “iterations in the knowledge loop” with learnings and experiences being transferred, accumulated as knowledge and leveraged in more contexts. It is exactly this loop and the connection between the CRFS labs and overall project and the larger agenda of food system change that is the topic of “Exploitation” in the next chapter.

4 Exploitation of CRFS Lab Outputs

In this chapter we present the framework for using (exploiting) the results obtained in the CRFS lab. As has been shown, in chapter 2 the scope of food system innovation is enormous and the types of actions and innovations needed span from social over public to private and cross-sectoral solutions. To properly exploit the results, the first step is to ensure that the experiments result in useful, relevant and feasible solutions that can be implemented, incubated or otherwise exploited as an innovative result. To this end we introduce the two iterative methods of innovation that are applied, namely Lean start-up and the design thinking inspired double diamond. These methods provide the first-level results in terms of solutions. We then present the next level of exploitation which is the networked CRFS labs at project level. At project level is the opportunity to design and manage this as a portfolio of CRFS experiments in a value creating way. Both for the quality of the validation, for emerging CRFS innovation typology but also, importantly, for the acceleration of the innovations from the labs through the portfolio approach. The final level of exploitation is the global level, i.e. above and beyond the project. Here we present the pathways to scaling - out, -up and -deep. The ultimate connection from small-scale, local experiments to food-systemic impact.

4.1 Exploitation is About Putting Results to Use

Exploitation is fundamentally about making use of the results. Innovation is invention plus exploitation. If it stays with experiments and does not become used in practice, it's not innovation. Exploitation is therefore an integral part of the innovation process. The need to both explore and exploit in order to innovate is sometimes called "Run and Reinvent" or ambidexterity meaning the ability to do both well.

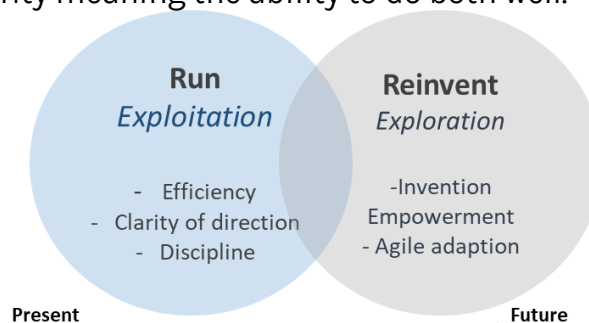


Figure 9: Exploitation and Exploration

The concept of Run and Reinvent is best used on the exploitation of results within an organization and the management of daily core business versus exploring opportunities of change and development. This perspective is relevant for the development of the solution at CRFS lab-level, but is less descriptive of creating the aspired impact.

Using a logic model is a way of articulating the connection between the program activities and immediate outputs, and how they contribute to the overall goals. In the case of the CRFS labs experiments, there should be connection between the activities and short-term local outputs, and the long term impact goals. A simple logic model shows the effect chain from input and activities to outputs, outcomes and impact. In the case of Cities2030 CRFS labs, this simple logic model is illustrated in figure 12 below.

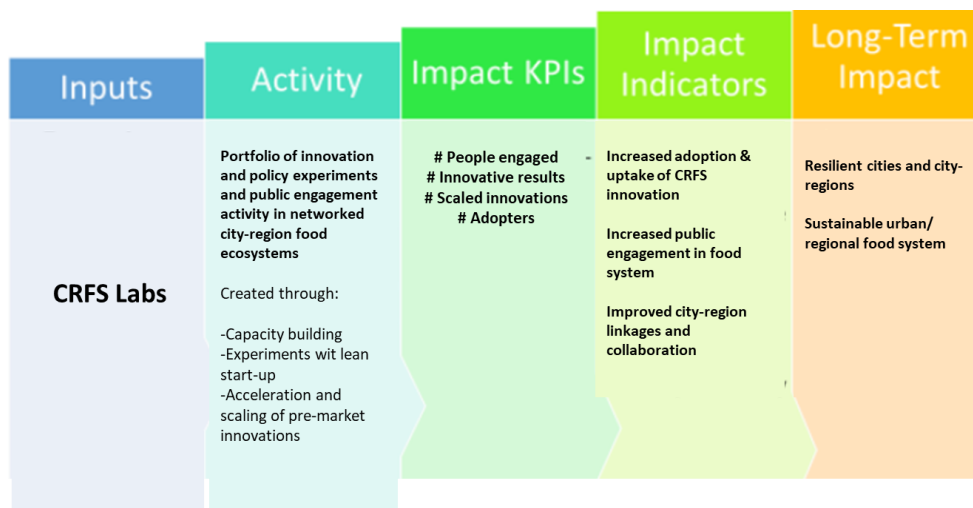


Figure 10: Simple logic model: Connection between CRFS labs activities and long term impact goal

This logic-model of how CRFS labs help to create results also implicates that there needs to be *coherence* between long-term outcomes and impact back to *what is generated and implemented in CRFS labs*. The experiments need to fall within the CRFS scope, be documented and have some innovative level to be able to serve as validation.

4.2 Cities2030 Exploitation Framework – What is The Intention and Pathway

The exploitation framework consists of parameters at three different levels, local CRFS lab level, project-level and global level (in the sense of beyond the project). In the following sections, the exploitation framework at each level will be detailed, per the following parameters:

- What is the unit, i.e. element of exploitation?
- What is the focus, i.e. what is important to achieve?
- What is the relevant framework, i.e. reference or methodology applied to achieve the result?
- What are the activities, i.e. which are the main processes carried out?
- What is the change model, i.e. implied assumptions or theory of change?
- What were the challenges in the experimentation process?

Exploitation Framework for CRFS Lab Results						
Change model	Level	Unit	Focus	Framework	Activity	Support model
	CRFS lab	Solution	Value	Lean startup/ Double diamond	Incubate/ implement	Local partnership/ expertise, sparring, monitoring
	Project	Portfolio	Evidence	CRFS innovation scope	Classify, integrate	Networked Labs, Exploitation Workshops, Digital dashboard
	Global	Domain	Impact	Food System Transformation	Advocate, fund, excel, scale	CRFS Alliance, pre-seed fund

Table 11: Exploitation framework for CRFS lab results

Local value: Place-based CRFS labs to generate ideas and feasible solutions that work locally. Discovering how to lever the city's mandate to the end of CRFS and Implementing concrete changes e.g. solutions for public services that improve local circumstances. Increase capacity, spur new businesses and confirm the CRFS economic and societal value proposition.

Exploitation to mature result > helping to further mature and implement the local experiment innovative results. Helping from idea to result locally. Business modeling and incubation activity.

Portfolio evidence: Networked approach of cities and food ecosystems experimenting and generating knowledge across geographical areas and the broad scope of food system innovation. This accumulated portfolio of results is creating *blueprints* for CRFS innovation and helping to define the scope and dimensions of place-based action and parameters for scaling and replicating.

Exploitation to scale-out > helping to document across different contexts/ labs and create blueprints and good practices. Deliberate replication of solutions (public/ social) and build market (business/ social) for products in more geographies. Innovation portfolio approach, uptake and mainstreaming.

Domain impact: International collaboration and partnerships to scale up to institutional change and favorable policy climate for sustainable food system transformation. Using the MUFPP and CRFS platforms. Ecosystem and innovation districts, funding and investments.

Exploitation to scale-up > helping to create a broader institutional and policy connection favoring sustainable food system and urban/ city regional mandate to act. Pre-seed acceleration of select innovations, create investment opportunities and international partnerships at beneficiary level and project level.

4.3 Exploitation at CRFS Lab Level – Deliver Solutions and Implement for Change

The pilot labs are the first level of exploitation and the “exploitable unit” are the solutions developed in the lab. The focus at lab level is to create solutions that are valuable and work – first and foremost in their development context, i.e. in the place and for the stakeholders. It is about creating results with the engaged stakeholders – and going for where the opportunity and interest is in relation to the CRFS innovation scope. It is about showing results against the local interest and agenda, also to ensure support, e.g. local allocation of implementation financing. As shown in Table 7. there are different areas of interest within the CRFS innovation scope.

The change model at lab level (i.e. “how do we get to local working solutions”) is given in the double diamond, which is how the labs deliver the solutions (Figure 9). In this *iterative development cycle of continuous improvements through experiment and test* (i.e. Living lab methodology, Lean start-up loops, design thinking method), the challenge is to determine *when a result is “exploitable”*. Exploitation is in fact integral to the innovation process through continuous deployment and improvement loops. In the case of CRFS Labs the ‘exploitable results’ can be considered at different stages of development: (a) when there is a firm commitment to pursue implementation of a new practice or establish a new social or commercial entity because of the experiment learnings. Or (b) the learnings during the implementation/ development/ deployment as an active process of taking the result into use. This definition of when a result is exploitable will have to rely on qualitative assessment in each case, which is integral to the evaluation process.

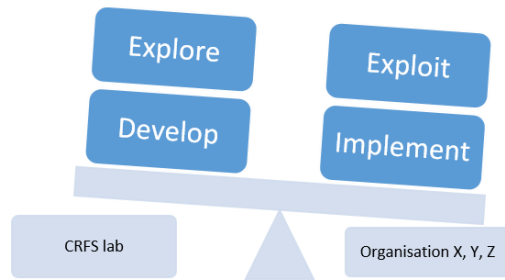


Figure 11: Continuous exploitation in CRFS labs

As the exploitation is integral to the labs’ innovation process, it is within the applied innovation methods, namely Lean Start-up and Double Diamond that the **incubation** and **delivery** of new solutions take place. These methodologies are presented in the following sections and including a list of useful toolkits.

4.3.1 Lean start-up – Iterative Development and Constant Improvement

The Lean start-up has gained widespread use as a development and innovation framework. The lean method, coming out of Japanese car manufacturing has been applied to efficient entrepreneurship by optimizing the process and speed of learning loops, thereby also bringing down the cost of development. The catch-phrase, “Think big, start small, fail fast and scale quickly” sums up the key principles which are to get started on the basis of hypothesis rather than plan, user and customer centric and quick and responsive development with the possibility to adjust fast.

This way of Lean development has similarities with the process of the Living Lab and is highly focused on entrepreneurship and business modeling as outcomes. The Lean start-up process is becoming very mainstream for start-ups and small companies with fewer resources. A simplified comparison to how Lean differs from traditional business development processes is provided in table 8 below:

Business Development Approach	
Lean	Traditional
Strategy	
Business model	Business plan
Hypothesis-driven	Implementation-driven
New-Product Process	
Customer development	Product management
Get out of the office and test hypothesis	Prepare offering for market following a linear step by step plan
Engineering	
Agile development	Waterfall development
Build the product iteratively	Fully specify the product before building it
Failure	
Expected	Exception
Fix by iterating on ideas and pivoting away	Fix by firing executives

Table 12: Simple comparison of lean and traditional approach, adapted from S. Blank 2013

Development phases

Within the lean start-up innovation framework, a commonly used business modeling process is divided into the phases of *discovery*, *Ideation*, *Incubation*, *launch*. Here the milestones are related to the business model elements of problem/solution fit,

solution/customer fit and product/market fit which are stepping stones to a sustainable and scalable business.

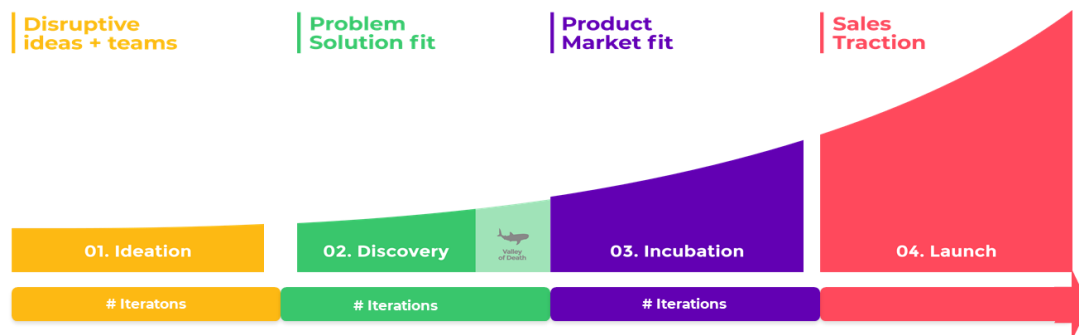


Figure 12: Development Phases and Milestones, adapted from AFCE

This typology of business modeling is typically used within entrepreneurial and commercial environment, but the methodology is in principle applicable on innovation processes in other organisations. Each of the development stages until incubation may need many iterations and learning loops. Results from each iteration is constantly feeding into the next cycle. Milestones for going through the overall development stages (figure 14) are typically summed up as the following:

- Problem Identification: Verified customer segment with a burning problem/need that they are willing to pay to fix
- Problem/Solution Fit: Verified a solution to their problem that they would buy right now if it were available
- Product/Market Fit: Verified a channel to reach customers for sale and delivery of solution
- Scalability: Verified that the business model can be scaled profitably and sustainably.

Iteration Process

The Lean innovation process is characterized by fast iterations or learning loops alternating between build, measure and learn and ideas, product and data, as illustrated in figure 9:

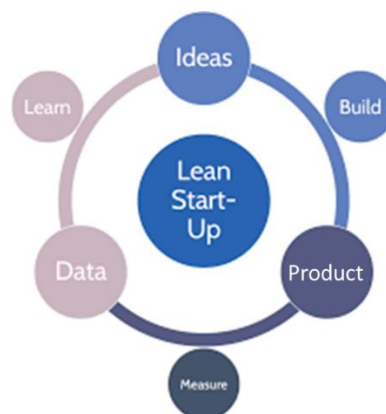


Figure 13: Lean Start up Learning loop, adapted from Wind4Change

The iterative process starts with the **ideas** - i.e. key assumptions about the product. Next is to **build** through testing and prototyping. This should happen as fast (and cheap) as possible. This leads to a minimum viable **product**, which a basic version of the future solution. This draft version is made available for real customers or users to test. **Measuring** is the next step and requires a baseline of metrics in order to interpret

success and failure. Feedback from the test customers is then collected and the **data** evaluated against the metrics (KPIs). The conclusions the feedback and measurement results determines if the ideas and assumptions proved valid or not and constitutes the **learning** that feeds into a new process of assumptions and what needs to be adjusted or changed.

The iterative approach is valid for each of the development steps (as shown in figure 8) and it is to be expected that several learning loops are necessary to come from idea to final solution. The advantage and mindset of Lean Start-up is the speed and efficiency of development. The methods used are different from “traditional business planning” and uses more agile and iterative formats such as the business model canvas.

There are several compilations of methods available to support the iterations and progress towards the milestones, see 4.3.3.

4.3.2 Double Diamond Approach – Getting to the Right Solution

The double diamond approach was developed by the British Design council²³ and has become a commonly used framework for innovation. It is built around the design thinking process which have inspired many frameworks with human-centered development, dating back to the 1960’s. The CRFS lab innovation phases exactly follow this structure. Coming out of a design methodology It is a more generic process than i.e. **Lean start-up focused on entrepreneurship.**

Development Phases

The four development phases of the double design model are: discover, define, develop and deliver. The milestones along the way is to come the challenge over the problem definition (are we solving the right thing) to the outcome which is the proposed solution. Just like the lean start-up, design thinking is an iterative process looping between the processes.

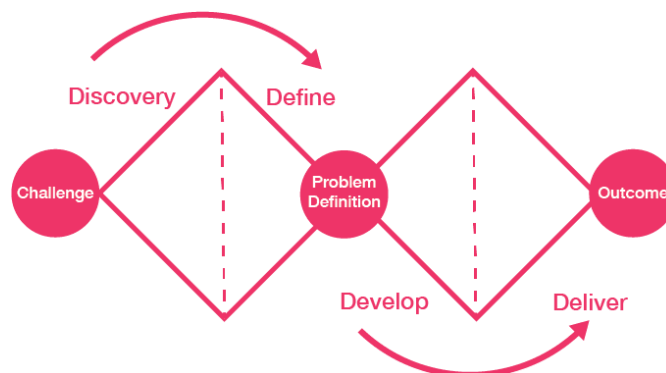


Figure 14: Double Diamond, source M. Geraron 2021

Each of these phases have been applied in the CRFS lab. The first quarter covers the start of the project where solution designers try to look at the world in a fresh way, notice new things and gather insights. Next is to define, i.e. narrowing down of these insights and prioritizing them into a clear problem definitions and thereby selecting the what to develop. Next, the third quarter marks a period of development where solutions or concepts are created, prototyped, tested and iterated. This process of trial and error helps

²³ <https://www.designcouncil.org.uk/>

to improve the solution and refine their ideas. The delivery phase is the final quarter and where the solution (e.g. product, service or collaboration) is finalized and launched.

Design thinking process

The iteration cycle in design thinking is empathize, define, ideate, prototype, test, i.e. continuous learning loops. This 5-step process and parts of it can take be iterated several times within the overall development squares of the double diamond. There are no linear dependencies. It's extremely useful in tackling complex problems that are ill-defined or unknown, by understanding the human needs involved, by re-framing the problem in human-centric ways, by creating many ideas in brainstorming sessions, and by adopting a hands-on approach in prototyping and testing.

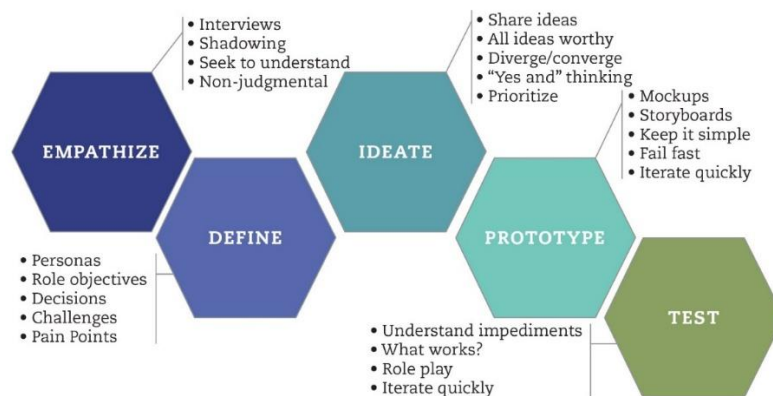


Figure 15: Design Thinking process, source Stanford

What the design thinking approach brings is the focus on user-centric design and deep understanding. Put people first: clients or users should be at the forefront the designs, understand their needs, strengths and aspirations. Another principle is the collaborative and co-creative nature. To learn with others and work from a multitude of knowledge and perspectives. Finally, the communication is important as the process is about involvement, understanding the problems and use them to generate more ideas.

4.3.3 Tools and methods in Iterative Innovation Processes

There are many readily available compilations of toolboxes to support the development across all development phases from idea to final solution. There is not a "one size fits all" approach in the case of CRFS labs, as the scope of innovation is both social innovation, public service innovation, commercial innovation and therefore providing several toolboxes and approaches.

Business modeling

Most business modeling toolboxes are focused around the discover, ideate, incubate and launch phases as presented in the Lean start-up section. A widespread tool is the "canvas" which is a one-page overview of i.e. the business model, the value proposition, the product/ market fit etc.

For complete compilations, Academy of corporate entrepreneurship²⁴ provides a comprehensive compilation of tools and methods following the Lean methodology and

²⁴ <https://www.afce.co/resources/#free-tools>

includes also an overview of the innovation journey. Another source is Innovation Board²⁵ which provides individual resources as well as complete kits freely available. Four Week MBA²⁶ also describes a range of methods.

Specifically, for using the Business model canvas there are sources dedicated to this, including Strategyzer²⁷ which developed the BMC. Other resources provide detailed guiding on how to fill it out, including the 9-step guide by Power MBA²⁸ and the Business Model Analyst²⁹ which provides several canvas types.

Design-methods and social impact

There are likewise many readily available method and pathway compilations available. A very widespread and used toolbox is that of IDEO and human-centered design. This compilation provides methods aligned to each of the development stages, *inspiration, ideation and implementation*. The toolkit provides comprehensive tools like logic model, theory of change, roadmaps for success and scalability. With the completeness it comes highly recommended.³⁰

Another toolkit from Development Impact and You is a compilation of practical tools to trigger and support social innovation. These tools are structured on different phases which makes it very comprehensive to identify tools to the need. Toolbox includes e.g. innovation flowchart, SWOT analysis, business plan and scaling plan.³¹

4.3.4 How Cities2030 Project Supports CRFS Labs to Succeed

When considering the task, focus and role of the CRFS labs the support model is thought to help the chances of success, i.e. of being able to deliver and incubate solutions. This is done through various means and measures, some are active and some built-in:

- The pilot CRFS labs are for the most part composed of 2-3 local partners in the city region, typically a local authority administrative unit (city, region, development agency) and knowledge partners with local knowledge and ecosystem. *This composition with complementary knowledge and outreach is an integral measure to ensure ecosystem outreach and sufficient resources to implement the CRFS lab.*
- The pilot CRFS labs engage in capacity building through training in system thinking, living lab methodology and facilitation of multi-stakeholder processes and coordination and sparring from dedicated WP leadership team. *This support model ensures that the local people (some without prior experience) become competent to*

²⁵ <https://www.boardofinnovation.com/tools/business-model-kit/>

²⁶ <https://fourweekmba.com/business-model-tools/>

²⁷ <https://www.strategyzer.com/canvas>

²⁸ <https://www.thepowermba.com/en/blog/business-model-canvas>

²⁹ <https://businessmodelanalyst.com/product-category/free-downloads/>

³⁰ <https://www.designkit.org/methods>

³¹ <https://diytoolkit.org/tools/theory-of-change/>

ensure ‘setting the right team’ and defining roles and to apply the Lean start-up and design thinking methods in the experiments.

- The pilots CRFS labs engage in specified workshop series of 3 progressive workshops which is based on the current report with regards to understanding the framework of exploitation and connecting local activities and outputs to overall outcomes and impact goals. *This support ensures that exploitation is not an after-the-fact reflection of “what can we do with this?” but rather an underlying perspective on the choice of experiments, and the assessment.*

The consisting parts of the exploitation workshops are included as Annex to this report.

4.4 Exploitation at Project Level – A Portfolio of CRFS Solutions

“The deliberate design of cross- fertilising effects, of exchange and integrated outcomes is what ultimately builds up to a core density of assimilated experiences, and it is at this stage that the system will begin to generate scaling and exponentially growing outcomes” (Chora 2021)

The next level of exploitation of results is at project level. At project level there are 15 networked CRFS labs and a higher number of experiments and solutions (see figure 8 for list and map of labs). The basic representation of the task at project level is to assess the CRFS solutions, classify them and process the results into the “knowledge loop”. It is about making sense and order the results and solutions with the purpose of “validating CRFS innovation” and ensuring that the documented learnings are fed into the overall “knowledge loop” of the project.

There risk at this stage is to oversimplify the classification and group the solutions by reducing the complexity. The risk is to mix apples and pears (or gummy bears for that matter). Why? Firstly because of the CRFS innovation scope which we have seen in chapter 2 is both broad, vaguely defined and emerging. This means we do not have a easily recognizable ‘apples’ and ‘pears’ to sort but much more complex and exotic sorts. Secondly, the experiments in CRFS labs take place in a deeply rooted context, including such complexity as a grounded CRFS (analytical construct), different city regional policy mandate – and dynamics – as well as other socio-economic features of the area. And, thirdly experiment in the CRFS lab follows and overall methodology but are not comparable in terms of exact same types (or number) of stakeholders engaged, same level of lab facilitation and methods applied or even same amount of time and iterations.

This difference and embeddedness in itself is not a problem to the local value creation – but it provides a complexity and “hidden variables” that necessitates conscious processing - sensemaking and codification - to meaningfully group results on qualities, not headlines, and to create learning and scalability. At this stage it is therefore important with an awareness of how do we perceive the CRFS labs’ outputs in terms. As a group of experiments? Or as a portfolio of grounded experience? Can we extract evidence or can we form strategic arguments. Etc.

How to view the sum of CRFS Labs	
Group	Portfolio
Experiment	Experience
Evidence	Intelligence
Validation	Strategic argument
Assessment	Sensemaking
Innovation funnel	Innovation layering
Objective	Grounded

Table 13: What is the nature of the CRFS labs outcomes?

Applying a *portfolio approach* to assessing and classifying is trying to make sense of the results and developing a grounded typology of “*what is innovative CRFS solutions*”. This approach is a necessary stepping stone in an emerging field of innovation such as CRFS.

4.4.1 Portfolio Insight Builds Strategic Arguments for CRFS

The networked labs and their experiments and solutions creates a new unit of exploitation, namely a portfolio of CRFS solutions which adds important value, both for the creation of strategic arguments (‘evidence’) to validate CRFS value propositions, but also to add value to the lab experiments and solutions themselves. A portfolio is about sense making across the individual units. From a portfolio approach it is possible to look for clusters of interest and themes (trends) and also the differences between local contexts, i.e. challenges, collaboration style, engaged partners to identify parameters and patterns.

“Portfolio management is an analysis and sense-making activity connecting innovation practice – specific projects, initiatives, and programs – to the intent and purpose behind those activities as well as the strategic goal of the organisation. It should connect problem framing to operations and continuous learning. Effective innovation portfolio management does not only look at the composition of the portfolio (list of innovation projects, initiatives, or investments) and problems, but it analyses what in the system and the organisational structures allows the organisation to be successful in the long term” (L. Fuchs 2021)

In a portfolio approach, sense making is an assessment by understanding the complexity of place-based and context-embedded outputs from CRFS Labs, without removing the element of experience that will always characterize ‘experiments’ in human systems. The design of the assessment as sense making is about how it is carried out, i.e. how insights are generated. A google questionnaire with a self-assessment by the CRFS labs is not necessarily a good way to extract the “tacit” parts that labs are not aware of or take for given in their context.

Sense making requires an engaging, qualitative assessment and is inclusive of the regional stakeholders. It needs to base on a robust protocol to extract relevant insights, and to identify, generate, map and leverage relevant connections and possible accelerating dynamics. This is part of creating the conditions for reinforcing and multiplying of network effects across a global, regional and local spectrum. The intelligence means here insights to enhance and support decision, aiming to producing

actionable intelligence. Intelligence is to articulate and represent robust strategic arguments in order to engage stakeholders, identify and design policy and innovations, as well as find solutions and produce acceleration effects.

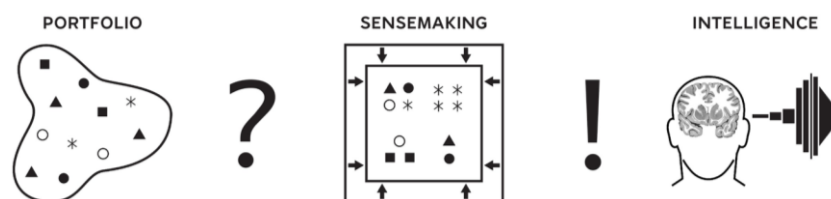


Figure 16: portfolio, sense making, intelligence (UNDP, 20201)

The portfolio approach is a distinction of how to receive the needed intelligence to create impact. It aims at the same thing as assessment, classification and evidence, but the approach is specifically apt to the complexity and context of the CRFS solutions. The inquiry based and grounded approach to creating insights and knowledge is recommended.

Sense making as assessment emphasizes the opportunity to direct the development at project level and accelerate dynamics, facilitate i.e. collaborations between labs. This way the value of portfolio and solution assessments is also impacting and enhancing the activities in the individual place and therefore has an added value on the creation of solutions.

4.4.2 A Grounded Contribution to CRFS Innovation Typology

The framework for active portfolio layering, design and management at project level is constituted by the city action frameworks and in particular the CRFS innovation scope as presented in chapter 2. This scope is given in part by the drivers and challenges but in particular the indicator frameworks of MUFPP platform and CRFS Toolkit. The assessment and classification of CRFS Labs Outputs will be initially classified against these known frameworks with an ambition of a grounded contribution to the topics and typologies relevant to the CRFS scope.

To determine “type of result” there are several dimensions to consider in order to classify the great variety of outputs in the portfolio of experiments happening in CRFS labs (open innovation) across very different contexts (place-based localized).

Firstly, *what is solution about and who is the owner?* There are many classification and typologies of innovation³² but an inquiry approach is needed. Is it a public services innovation? Incubation of a new commercial service or product? Is it about facilitating citizen-driven social initiatives? Or is it a cross-sectoral partnership?

What is the *innovation genesis and depth?* There are many versions of innovation matrix but in essence this regards incremental versus radical innovation and impact levels. If the innovation domain is mature or emerging. Is the genesis or ‘spark’ of the innovation a “game changing” new technology or fx regulatory changes? Or, is it more short-term improvement oriented?

How *advanced* or *mature* is the innovative result? The experiments (based on lean start-up) are *iterative* and there is no “hard-stop” or fixed point where experiments stop, and exploitation starts. A common understanding is four key phases of innovation: Ideation, discovery, incubation and launch. The process of exploitation is a fluid process of maturing the idea into working concepts, tests and incubation or implementation along these phases.

The maturity is directly impacting the pathway to solution feasibility as well as the openness needed. The overall purpose is to impact, but the pathway to impact can be implementing improvements, scale-out of solutions to broader markets or geographies or scale-up to impact institutional factors.

The activities of assessment of the solutions happens in close connection with the process of evaluation and learnings documentation in the labs. The assessment format and content will be defined with acknowledgement of the portfolio and sense making approach, as a project wide standard observing both evaluation of local performance and perception of value but also learnings of relevance for CRFS validation, as well as replication and scaling. Likewise, a grounded typology of results will be applied to support the portfolio management upwards as evidence and for engineering synergies and collaboration.

These standards are not defined and are by no means a stand-alone output from the assessment. Mock-ups to serve as point of departure for further discussion with CRFS labs provided below:

Towards Solution Typology		
Parameter	Informs	Reference
Topic	What is the focus / applicatoin level	Product/ service etc.
CRFS scope	Relation to CRFS topics	Short supply chains, urban food market etc.
Maturity	What is the status of development	Ideation, incubation, launch etc.
Innovation locus	Who will drive the development?	Public, private, social etc.
Degree of innovation	What is the ambition and novelty?	Incremental, dirsuptive etc.
Genesis 'spark'	What is the core enabler?	Technology, regulation, opportunity etc.

Table 14: CRFS Solution Mock-up Typology

Assessment
What is the performance/ functioning
What is the perception of value ?
What were challenges in implementation.
What were critical success factors?
What are the context dependencies
What are tips for replication/ adaption?
How scalable is the solution?

Table 15: CRFS Solution Mock-up Assessment

4.4.3 *Cities2030 Support for Successful Portfolio Management*

The CRFS Labs form part of a larger innovation model for creation of new knowledge, more connections and conditions for scaling and valorizing the results (See illustrated in figure 10).

In this model, policy and living labs are horizontally connected, both as *“Sustainable Evidence-based Structured Methodologies”* in the larger knowledge creation loop. The labs are instruments to ideate, test and develop solutions as tangible evidence of what works. The policy results from labs feed into i.e. CRFS policy blueprints and tap into/ help to build the policy observatory. The solutions (product, services etc.) feed into e.g. the CRFS innovation catalogue and tap into/ help to build into the CRFS pre-seed fund.

The project is overall about getting the big “knowledge loop” in motion and comply with feeding in the best possible insight/ intelligence/ evidence from the labs’ outputs as possible.

- Measures for knowledge sharing and lab-to-lab visibility is established both digitally as well as through active coordination and infrastructure to register activities, data, engage etc.
- Expert and Mentor resources engaged in the project (AGFT, FFI) to support horizontally over all labs and with opportunity to generate a portfolio approach along with the WP leaders. The assessment process and portfolio approach is further reflected in the exploitation workshop series.
- The project-to-project relations and exchanges with i.e. Food trails and Fusili gives a valuable perspective and the cross-project and cross-topic interaction is an important activity in support of the project level exploitation.

4.5 **Global level – Making an Impact Beyond and Above**

The last level of exploitation of CRFS labs’ results is beyond the framework of Cities2030 and represents the perspective of scaling solutions as well as impact.

4.5.1 *Food System Transformation as The Impact Target*

Food system transformation is a global challenge and needs address at all levels. Scaling local solutions to address global challenges is the desired impact. At a global scale, the unit of exploitation is the CRFS innovation domain – strengthening the institutional uptake and mainstreaming the CRFS approach as a framework for action locally across all locations:

The Cities2030 change model (figure 10) implies already a focus on scaling results internationally beyond the current geographies, leveraging elements like the CRFS Alliance, which is an open platform to grow organically with engagement of food system stakeholders, for example participating in local experiments.

Other inherent features such as the active reference to MUFPP and CRFS creates foundations for impact and relevance of results beyond the project. As of today more than

200 cities are applying the MUFPP framework and this reference increases the likelihood of replicability of the Cities2030 solutions and results.

4.5.2 *Scaling Impact - What Does it Mean*

The notion of scaling can mean different ways of enlarging the impact of results and needs several dimensions to succeed:

Scale-up is the vertical view on addressing the same topic at different levels, changing institutions at the level of policy, rules and laws to create and enabling environment. Scaling out refers to impacting greater numbers, i.e. horizontal uptake in the form of replication and dissemination. Finally scaling-deep refers to the impact of cultural roots, changing relationships, cultural values and beliefs, hearts and minds. This is a somewhat less often used perspective on scale, if ever so relevant. Affecting how we eat is deep scaling. And the cultural dimension is strong in the case of CRFS innovation scope. To build connections between communities and local food production. Cuisine and place-based specialties. The social cohesion between rural and urban areas through food production. Grounding a typology for deep scaling with CRFS can only happen with actual experiments and solutions. In Cities2030 there are several labs focused on this topic.

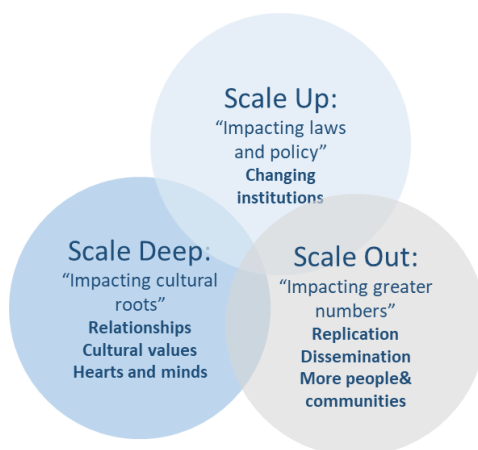


Figure 17: Forms of Scale, Source Riddell 2015

The strategies to pursuing the different types of scaling have been mapped (Riddell 2015) indicating how to approach. For scaling out strategies include *deliberate replication*, which refers to spreading or replicating programs geographically and to greater numbers. Considerations of the 'deliberate' means open eyes to what is being replicated, programs or principles. There can be both ethical questions in maintaining the integrity and fidelity in a solution (social innovation) and on the other hand it can be necessary to adapt to local contexts. Spreading principles is more along the lines of inspiring an action. For Scaling up the strategies to policy or legal change are to partner, advocate and engage in new policy development. Scaling deep is Spreading big cultural ideas and using stories to shift norms and beliefs, investing in transformative learning. Across all types of scaling an important strategy is to making scale a conscious choice – from the beginning as it affects the solution.

	Description	Main Strategies
Scaling Out:	<i>Impacting greater numbers.</i> Based on the recognition that many good ideas or initiatives never spread or achieve widespread impact.	Deliberate replication: Replicating or spreading programs geographically and to greater numbers Spreading principles: Disseminate principles, with adaptation to new contexts via co-generation of knowledge
Scaling Up:	<i>Impacting law and policy.</i> Based on the recognition that the roots of social problems transcend particular places, and innovative approaches must be codified in law, policy and institutions.	Policy or legal change efforts: New policy development, partnering, advocacy to advance legal change and redirect institutional resources.
Scaling Deep:	<i>Impacting cultural roots.</i> Based on the recognition that culture plays a powerful role in shifting problem-domains, and change must be deeply rooted in people, relationships, communities and cultures.	Spreading big cultural ideas and using stories to shift norms and beliefs Investing in transformative learning and communities of practice
Cross-cutting strategies for scaling:	<i>Cross-cutting strategies</i> were those approaches all participants reported using to scale their initiatives, and were not specifically associated with scaling out, up, or deep.	Making scale a conscious choice Analyzing root causes and clarifying purpose Building networks and partnerships Seeking new resources Commitment to evaluation

Table 16: Strategies for scale, Riddell 2015

4.5.3 Activities To Enable Scaling of Impact

Scaling is an ambition and a perspective on all activities but scaling is nevertheless an accumulated effect of successful previous steps. At the stage of scaling solutions, or to enable scaling, the following activities are in the focus:

Scale-up to influence at the institutional level requires **advocacy** – credibly and convincingly promoting the benefits or CRFS. This pathway is enabled by a range of factors, including engaging stakeholders, in the CRFS labs, in the CRFS alliance and in all occasions of dissemination and meeting. Advocacy is backed up by strong strategic arguments which rely on showcasing the results. Influencing upwards institutionally could mean more focus on food system or CRFS enabling policies at i.e. national level where the local policy makers do not have mandate. In terms of types of policies, it could also be in creating incentives, including public innovation and investment schemes in the field of CRFS.

Public **financial incentives** for CRFS, means for example pre-seed investments, through grant schemes, vouchers and incubation and acceleration. This is a planned action of Cities2030 scaling activities, to pursue the establishment of pre-seed funding opportunity. Along with active referral to other EU funding schemes.

The financing opportunities are important for achieving solutions of **excellence**. Excellence is achieved through more iterations, more learning opportunities and more time. Connecting to the ecosystem of impact incubators and accelerators that can professionally take the solutions to the next stage is therefore important.

Excellence is what is needed to start talking about **the ‘CRFS solution’** scope. Developing a market and connecting to the pathways that businesses and industry is foreseeing (see chapter 2) is needed for mainstreaming.

4.5.4 The Full Journey - From CRFS Lab Experiment to Scaled Impact

This report has sketched out the theory of change along with a guiding pathway. To complete this view of the “complete journey” of a CRFS experiment, this is illustrated in figure 21.

The model shows the dynamics of the iterations of learnings (experiments) happening at CRFS lab level, and how **‘outputs’** from these iterations feed into the desired outcomes for cities and their stakeholders (**‘purpose’**). And thereby help to create long-term impact on the food system (**‘goal’**). The model uses **‘cities’** as singular denominator, which is somewhat reductive of the “multistakeholder” composition of the CRFS labs. ‘Cities’ should not be understood exclusively as the city administration but broader.

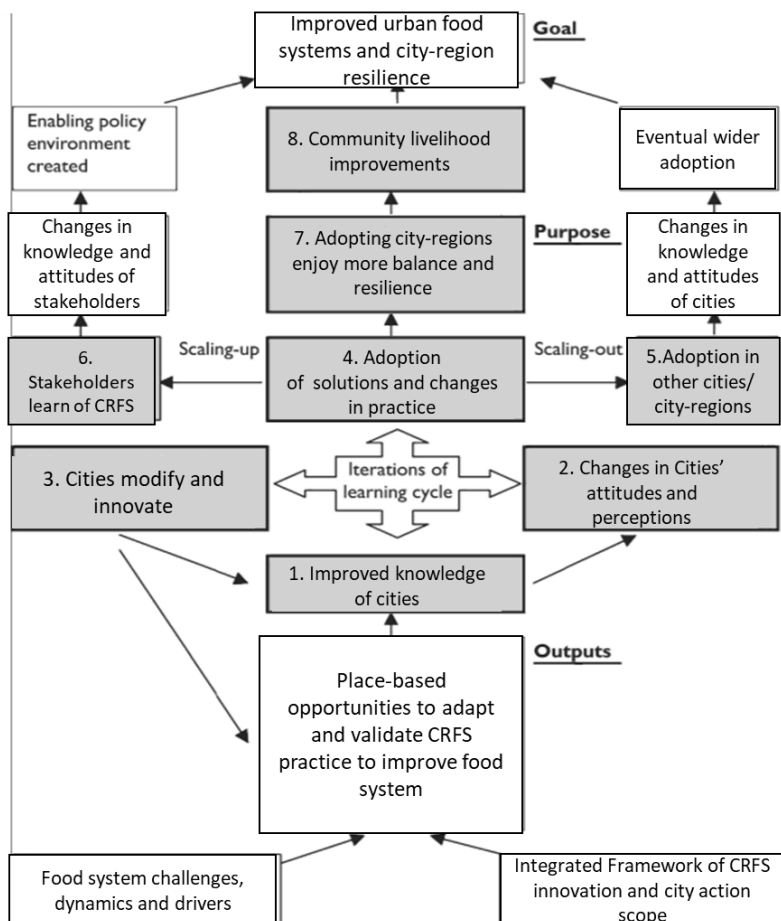


Figure 18: The dynamics of exploitation of CRFS lab experiments towards long-term impact

Starting from the bottom: **‘Food system challenges, dynamics and drivers’** together with **‘Integrated framework of CRFS innovation and city action scope’** are feeding into the opportunities. They are so to speak creating a rationale and “making the case” for why cities and other stakeholders should engage (see chapter 2 of this report).

The **‘Place-based opportunities to validate CRFS practice and improve food system’** is both informed by this rationale but is a dynamic category that also develops with the actual examples and iterations of cities experiments (This is visualized with arrow from box 3.). These opportunities are thus not static, but constantly evolving with new knowledge, more awareness, more demand etc.

These opportunities then spark **‘Iterations of learning cycle’** which are interrelated processes (grey colored boxes 1-8) which revolve around the CRFS labs, both as local innovation ecosystems but also the networked CRFS labs in Cities2030. Box 1-4 relates directly to the workings of the local CRFS labs and processes of capacity building, running experiments and maturing the results into solutions and practices. Box 5-6 relate more to the networked CRFS labs connected to Cities2030.

'1. Improved knowledge of the cities' refers to cities being more aware and knowledgeable in the field of CRFS innovation and the local rationale and opportunities. Initially speaking, this is awareness and engaging in discovery and training. But this is also evolving with the experience and learnings from experiments and over time.

The knowledge leads to **'2. Changes in cities' attitudes and perceptions'** translating also to the motivation and prioritization locally. The more knowledge is attained the better perspective and understanding of what CRFS can bring locally. Over time this is determining for i.e. funding and implementation efficiency and solution uptake.

'3. Cities modify and innovate' is the process of experimenting, ideating, facilitating, prototyping – turning opportunities into new ideas and pursuing solutions. In the CRFS labs this is the participatory process with multi-stakeholder engagement generating new ideas, co-designing and co-creating, or modify concepts into solutions that work in the local context. The cities' learnings and innovations feed back to the pool of "Opportunities" and are outputs

The discovery of opportunities and experimentation is directed towards creating exploitable results, improvements and change.

'4. Adoption of solutions and changes in practice' is where experiments become solutions or practices that result in value and change in the local place. These solutions and practices also represent CRFS innovative cases and examples and as such add to the definition and clarification of CRFS innovation scope (see chapter 2).

The tangible examples of value creation with CRFS is key to scaling both solutions and impact. To scale-out means to impact horizontally and increase the geography and number of replications and to scale-up means to impact vertically and institutionally. Both levels are important in *shaping* the opportunities going forward, through adoption and mainstreaming.

'5. Adoption in other cities/ city regions' (scale out) is the horizontal impact as many more take up the practices and approach CRFS innovation. Adaption can both mean of tangible solutions and practices but also in a wider sense of the approach of the CRFS lab.

'6. Stakeholders learn of CRFS' (scale up) is here used very broadly to indicate both awareness and participation related to the CRFS lab. This is about vertical impact 'upwards', i.e. at national, regulatory level or –again broadly understood – throughout the food value chain.

Box 7-8 are closer to the purpose of the CRFS innovation and uptake, namely the effect it has on the city regions and the communities. **'7. Adopting cities enjoy more balance and resilience'** is the desired outcome. A more balanced development between urban and rural areas in regional territorial perspective, more city regional interlinks in food value chain better equipped to ensure food safety. **'8. Community livelihood improvements'** as e.g. city region synergies with local job- and value creation related to food production, re-connecting urban areas with food production and enhancing territorial social cohesion.

This rather formalistic description of “what are we trying to achieve” is important background for the exploitation and the different levels of results – from outputs and numbers to outcomes and change – and the commemoration of the overall goals in all phases of the innovation action.

These outcomes are creating bigger rings in the water and helping ultimately to *shape* the opportunities. With ***‘enabling policy environment created’*** and ***‘wider adoption’*** mainstreaming the CRFS perspective, this strongly ties to private business and new markets and thereby increased funding and investments.

5 Ending remarks

So, how can small-scale place-based experiments aimed at solving the pressing and complex problems of the food system become more widely adopted and lead to transformative impact?

Returning to this initial question, this report has intended to vision this pathway in conceptual as well as practical terms of activities and workflows at each “step of the ladder”.

The premise for Cities2030 is to test an approach and create a networked action among different city regions that – because of their differences – will come up with a plethora of solutions. The exploitation is about creating value, making sense, and reach to good arguments for where and how CRFS can be used as a valuable approach to transformation of urban food systems.

In this effort we need to balance the structured approach with an open and creative mindset. Balance the consciousness of our different starting points with readiness to see similarities in our cultural relations to food, rather than differences in what -or when we eat. And to balance the systemic understanding of food as systems with a personal experience of food as much more – as living organisms, wonders of nature, sensible experiences and building blocks of life.

The ambition of the project remains to make improvements of value in local places. To facilitate cross-city uptake and international collaboration at solution level. And to scale the best solutions in the framework of incubation and acceleration. Like any entrepreneur with a great idea, we set out to “think big, start small, fail fast and scale quick”.

You can follow or join our journey here: <https://cities2030.eu/>

6 Resources

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Annex

The *First section of the Annex* introduces the meaning and the purpose of exploitation of project results, as defined in the Grant agreement (GA), including also the explanation of the project's exploitation strategy according to the GA. In this section there is also an overview and a description of the tasks and deliverables within the project that are related to the exploitation. *The second section* focuses on explaining the components of the Exploitation matrix that will be filled in by the pilots (Living and Policy Labs). *The third section* provides an outline for the exploitation workshops that are planned within T.5.3. *The fourth section* is dedicated to the activity of seeking synergies between pilots and ongoing H2020 projects, which will be done with a support of WP3.

1. Exploitation in CITIES2030: purpose, strategy and relevant tasks and deliverables

The exploitation phase of a project is aimed at enabling the use of project's results beyond the duration of the project. The outputs from the CITIES2030 project should be used after its completion and prove how they have influenced the EU Urban food system(s) and ecosystem(s) (UFSE) landscape. The exploitation of results is regulated in **Article 28 of the Grant Agreement**, which states that: Each beneficiary must – up to four years after the period set out in Article 3 – take measures aiming to ensure 'exploitation' of its results (either directly or indirectly, in particular through transfer or licensing; see Article 30) by:

- (a) using them in **further research activities** (outside the action);
- (b) developing, creating or marketing **a product or process**;
- (c) creating and providing **a service**, or
- (d) using them in **standardization activities**.

In CITIES2030 there are several **tasks and deliverables that are related to the exploitation of the project's results**, within WP5 and WP7.

The aim of **Task 5.3. Exploitation and Business Plans (M13-M48)** is to lead the last mile to exploitable outputs, monitor and uptake the most exploitable outcomes e.g. contents, observations, improvements, good practices and innovations from each pilot. In particular, this task focuses on collecting data from the pilots' experiments and markets, monitoring and taking the most exploitable outcomes e.g. contents, observations, improvements, good practices and innovations from each pilot, seeking synergies between the pilots and ongoing H2020 projects, carrying out the Exploitation Workshop (EW) series with the pilots to develop market-ready products and services. The EW series will provide the inputs and help to develop the Exploitation Plans for different types of beneficiaries (e.g. public bodies, business, consultancy, training), which is included in WP7. Furthermore, these EW will be the fundament for Business Plans for innovations, i.e. building capacity on business planning and modelling. AGFT (P27) has the Lead partner role for this task and coordinates the activities, whereas all partners develop the task simultaneously in their city/country.

The aim of **D.5.3. Pilot cities innovation action plan (M12)** provides a comprehensive provision gathered in a digital format and incorporating a set of information describing with precision the program to implement the innovation in the city or regions. Regarding the exploitation as one of the phases of the experimentation process, D.5.3. determines the Action Plan for this phase, which follows after the other phases of the experimentation are finished. Lead partner for D.5.3. is VEJLE (P10).

Task 7.6 – Exploitation of results plan an implementation (M25-M48). Though sustainability frameworks are embedded in all WPs, **WP7 centralizes CITIES2030's Heritage Action Agenda**, co-created under this task. This actionable and deployable agenda incorporates an action plan, describes and structures a strategy to facilitate and encourage the exploitation of the project outputs and ensure the sustainability after the project's scope. The consortium will co-develop this legacy plan exploring multiple pathways to gather support for the sustainability of the project results. The action plan includes a task force of 40 multipliers distributed in all participating countries. It details tailored exploitation plans including target markets and agents of the UFSE, e.g. market analysis and exploitation plan (segments, strategy), performance-based price elasticity assessment, market access barriers including IPR financial business case analysis, e.g. business models and exploitation plans aimed at target markets to illustrate results of the project, and to show how they can innovatively benefit the UFSE in a commercially feasible ecosystem services offering. A Research Innovation Action exploitation plan and a Citizen science exploitation plan. Results will be presented at international exhibitions in the reference arena e.g. UFSE and related spheres. All in all, encourage the use of the project results during the project scope and beyond. SLEAN (P14) has the Lead partner role and coordinates the activities, whereas all partners contribute with the outreach and dissemination actions. Countries with more than one partner organise coordinated actions per complementarity of expertise and distributed monthly roles per agreed country specific calendar of activities.

D.7.1 – Dissemination, exploitation, communication and synergies strategy (M3) Lead: IAAD (P5). A comprehensive provision gathered in a digital format document and incorporating an actionable set of practical information.

D.7.5 – Exploitation of results plan (M28, M38, M47) Lead: SLEAN (P14). A comprehensive provision gathered in a digital format document and incorporating an actionable set of practical information. A comprehensive **exploitation plan** is developed within D.7.5, outlining the exploitation activities to be performed within and beyond the project, the priority UFSE agents and spheres best suited to exploit the results of CITIES2030 and the measures that will be used to assess effectiveness on an on-going basis. The exploitation plan will be consistent with the terms of the Grant Agreement and Consortium Agreement ensuring there is a clear pathway exploiting project outputs and will contain the following elements: exploitation objectives, internal process to collate and manage knowledge outputs, to ensure full use of all CITIES2030 results, identification and profiling of use cases for the innovations, proposed tools and channels for transfer of knowledge, ensuring effective exploitation of the project outputs, processes to ensure foreground and Intellectual Property (IP) are properly managed.

The activities performed within T.5.3., i.e. the Exploitation workshops and the data collected through the Exploitation matrix will provide the inputs and help to develop the Exploitation Plans for different types of beneficiaries (e.g. public bodies, business, consultancy, training), which is included in WP7.

2. Description of the Exploitation matrix and its components

This section proposes an Exploitation grid, **a universal template which will serve as a basis for determining the profile for each LL/PL**. The questions included in the Exploitation grid will focus on the profile of the pilot organization, as well as the

innovation, differentiating between innovations that include new products, services, processes (CRFS LLs) and innovations that include sustainable policy frameworks (CRFS Policy Labs). The definitions of terms and the categorizations used in the Exploitation matrix will mainly **build on those provided in the Grant Agreement and the Cities Regions Food Systems Labs Prototyping Toolkit**. CRFS Labs Prototyping Guidelines & Toolkit is developed based on Cities2030 pilot partners survey results and studies of international organizations, research institutes and the academic literature on CRFS and food systems innovations. The guidelines give an overview of the main concepts and definitions for development CRFS Labs – Cities Regions Food Systems, CRFS Labs, food system innovations as well provides tools for developing CRFS Policy & Living labs. The document is available to all project partners and can be used as guidelines for the development of CRFS Labs. CRFS Labs Prototyping Guidelines & Toolkit is drafted within the WP3 (T.3.5 & T.3.6) by Cities 2030 partners - Università Iuav di Venezia and Latvian Rural Forum.

2.1. Section 1 of the Exploitation matrix

This section of the Exploitation matrix focuses on the *form of the exploitable result and the type of the required Exploitation plan approach*, according to the GA; *the steps of the food journey and components*, as well as the *characteristics of a sustainable, resilient CRFS* outlined in the Cities Regions Food Systems Labs Prototyping Toolkit.

1. In order to qualify a particular outcome from the experiments within the project as exploitable, it is important to check if this result has influence on the CRFS, which is in line with the aim of the project. As already stated in the Introduction section of D.5.3., the goal of CITIES2030 project is to unleash the innovative power of cities in creating their pathway to positively impact the food system and gain the benefits underway. The **concept of city region food systems (CRFS)** which has been pioneered by the FAO but since promoted along with MUFPP, is conceptualizing how the cities and surrounding regions connect to and play a role in the food system – from production to consumption. The **goal of the CRFS Labs** is to generate CRFS knowledge and make an impact by developing innovation in CRFS practices - new products, services, processes (CRFS Living labs) and sustainable policy frameworks (CRFS Policy labs) on a small scale and to find solutions that can be implemented on a larger scale. The aim of CRFS Labs is to design solutions (actions or policies) not only for citizens but also design these solutions with them.

Please specify which of the forms specified in the GA is the most adequate description of your exploitable result:

- a. **financial exploitation**, building products, projects, or services based on the project results;
- b. **research & Innovation development**, by engaging new projects (EU-funded or sponsored by other sources), based on the experiences gained in the project;
- c. **education**, e.g. courses, at the university level or in continuing education, etc.;
- d. **community building** around the topics of the project, raising awareness for the addressed problems and the proposed solutions;
- e. **knowledge transfer**, from academia to industry, by collaboration or via employees;
- f. contributions to **open-source projects** and **standardization**, providing access to the framework and encouraging its broad adoption in commercial and public systems for interested parties.

2. What type of an Exploitation plan approach, as specified in the *GA*, is needed considering the selected exploitable result in the previous question and your type of organization and?
 - a. **industrial** exploitation – CITIES2030 10 innovative solutions developed under WP5 will provide competitive advantage while enlarging the market footprint, knowledge base and services portfolio of the companies involved (industrial partners in the project); generation of a platform of CRFS technologies, products and services for exploitation by EU companies via the *CRFS Alliance platform*.
 - b. **academic** exploitation plan – offering courses/seminars related to topics from the project; contributions of the academic partners within CITIES2030 (work related to the project’s results) to open-source software (particularly the *Single Click CRFS Platform – S2CP*); building new partnerships and engaging in future projects/acquiring further funding at national and EU level.
 - c. **civil society** exploitation plan – raising awareness through the networks of the public sector and not-for-profit partnerships among the citizens of the benefits of taking measures towards transition to sustainable UFSE (through planned engagement in WP3- *T.3.1. Engage agents and stakeholders of the food system arena (M1-M48)*); raise awareness of the benefits of implementing sustainable UFSE measures across a different spectrum of agents – form a group of early adopters to accelerate the exploitation of results in the EU
3. Which types of **stakeholders** does your LL/PL include, according to the *Cities Regions Food Systems Labs Prototyping Toolkit*?
 - a. production
 - b. processing
 - c. distribution
 - d. markets
 - e. consumption
 - f. waste
 - g. security
 - h. ecosystem services
 - i. livelihood and growth
 - j. inclusion and equity
4. *Cities Regions Food Systems Labs Prototyping Toolkit* provides several characteristics of a sustainable, resilient CRFS which aspires to enhance sustainability across scales and sectors. Which of these characteristics give the best description of your exploitable result’s potential?
 - a. Supports **participatory governance** - it fosters **food policy and appropriate regulations** in the context of urban and territorial planning. It also **fosters transparency and ownership** across the food supply chain.
 - b. Increases the **region’s resilience against shocks** and **lessens the dependence on distant supply sources**.
 - c. Increases **access to food** - both rural and urban residents in a given city region have access to sufficient, nutritious, safe, and affordable food. It supports a local food culture and sense of identity.
 - d. It **connects food, nutrient, and resource flows across urban and rural areas** (i.e., the use of urban organic wastes and wastewater as resources in the urban agro-food system) and **prevents/reduces food wastes** in a given city region.

- e. The **ecological footprint** of the city region food system is minimized from production to consumption, and it lowers greenhouse gas emission in food transport, processing, packaging, and waste management.
 - f. Generates **decent jobs and income** - it provides a vibrant and sustainable regional food economy with fair and decent jobs and income opportunities for small-scale producers and businesses involved in food production, processing, wholesale and retail marketing, and other related sectors (such as input supply, training, and services) in rural, peri-urban, and urban areas in a given city region
 - g. It harnesses more **integrated urban-rural relations**, strengthens social relations between consumer and producers, and promotes the inclusiveness of smallholder (and urban farmers) and vulnerable groups across the supply chain
5. In order to proceed with the survey, please select which category is more suitable for your selected exploitable result. Is your innovation based on:
- a. new **products, services, processes** (CRFS LLs) --- proceed with answering the questions in Section 2
 - b. sustainable **policy frameworks** (CRFS Policy Labs) - --- proceed with answering the questions in Section 3

2.2. Section 2 of the Exploitation matrix

This section of the Exploitation matrix focuses on the identified problem that the innovation is trying to solve, the solution provided, the target market/users, the organization of the exploitation process, the finance issues, action plan and timetable of exploitation. Depending on the nature of the innovation, i.e. whether it includes new products, services, processes (CRFS LLs) or sustainable policy frameworks (CRFS Policy Labs), there are two separate sets of questions that go into more details regarding the pilot's innovation.

A Exploitable results based on new products, services, processes (CRFS LLs)

6. What is the *problem* you are trying to solve in the area of sustainable CRFS?
 e.g. In the EU, around 88 million tonnes of food waste are generated annually with associated costs estimated at 143 billion euros (FUSIONS, 2016). While an estimated 20% of the total food produced is lost or wasted, 33 million people cannot afford a quality meal every second day (Eurostat, 2018).
7. Describe your solution/innovation
- a. Describe your product/service/process, in terms of its *strengths, weaknesses, opportunities and threats*, what is the *level of readiness, the expected added value*.
 - b. Value proposition: What will be the main *value and benefit for the target customer* if they use the pilot's innovation?
 - c. Which *technology* is it based on?
 - d. What *resources* are needed for its production/offering?
 - e. What are the *key activities* that should be carried out?
 - f. What *kind of partnerships* are needed?
8. Target market
- a. What is the estimated *size of your market*?
 - b. What are the *trends* at your identified target market?

- c. Customer segments: Define the different *customers' profiles* that can potentially use the innovation developed within the Living lab.
 - d. Channels: Define the *potential channels* that the LL will implement in the business model in order to reach clients.
 - e. Customer relations: Specify what kind of *customer relationship* the LL will have in order to attract new customers/users, as well as retain the already existing customers/users.
 - f. What will be the *prices and the sales conditions*?
 - g. Who are *possible competitors*?
9. Management - How will you organize the new entity that will work on exploitation of the LL's result?
- a. What will be the *legal form of this organization*?
 - b. What kind of *staff* will be needed to run the organisation?
 - c. What kind of *expertise and skills* will be required from the team members/employees?
10. Finance
- a. What is the *required capital* to start with organizing the exploitation of the selected result?
 - b. What are the *potential sources of finance*?
 - c. What are the *expected costs* and the *cost structure* (fixed, recurring, variable and one-off costs)?
 - d. Define the *expected revenue streams*, i.e. how will the business model be financially fed?
11. Action plan and timetable of exploitation
- a. What are the *steps within your Action Plan* in order to exploit the selected result?
 - b. *Responsible people, timeframe, milestones*
 - c. How will the exploitation of the innovation *reflect on your existing activities/business/portfolio*?
 - d. Will there be any *IPR measures*?

B Exploitable results based on sustainable policy frameworks (CRFS Policy Labs)

12. What is the *problem* you are trying to solve in the area of sustainable CRFS?
 e.g. ... It is found that relevant legal acts for governing food waste include circular economy and waste law, the Common Agricultural Policy and the Common Fisheries Policy as well as food law, while international environmental targets serve as an overarching measure for governance analysis. The legal analysis shows that existing legislation lacks steering effect to significantly reduce food waste. ... (Garske et al., 2020)
13. Describe your solution/innovation, in terms of:
- a. How does it provide solution for the stated problem?
 - b. What are the *policy representatives* and other relevant actors in the food policy ecosystem that need to be involved in further development/implementation of the policy innovation (policy carrier, operational level, supporting institutions)?
 - c. What are the *expected barriers* towards further development/implementation of the policy innovation (political, technical capacity, technology, financial)?
14. Target market
- a. Who are *the beneficiaries/users* of the policy innovation? (e.g. considering the actors of the value chain)

15. Management - How will you organize the new entity that will work on exploitation of the pilot's result?
 - d. What will be the legal form of this organization?
 - e. Does your innovation involve a *specific technology, skills and expertise*?
 - f. What *kind of staff* will be needed to run the organisation?
 - g. What type of *expertise and skills* will be required from the team members/employees?
16. Finance
 - e. What is the *required capital* to start with organizing the exploitation of the selected result?
 - f. What are the *potential sources of finance*?
 - g. What are the *expected costs and the cost structure* (fixed, recurring, variable and one-off costs)?
 - h. Define the *expected revenue streams*, i.e. how will the business model be financially fed?
17. Action plan and timetable of exploitation
 - e. What are the *steps within your Action Plan* in order to exploit the selected result?
 - f. Responsible *people, timeframe, milestones*
 - g. How will the exploitation of the innovation *reflect on your existing activities/business/portfolio*?
 - h. Will there be any *IPR measures*?

3. Exploitation workshops

The exploitation workshops will consist of two parts. The first part will be dedicated on developing a business model canvas (Figure 1). In creating the business model the partners focus on the following segments, based on the Business Model Canvas by Alex Osterwalder:³³

1. **Customer segments:** Define the different customers' profiles that can potentially use the innovation developed within the Living lab.
2. **Value proposition:** What will be the main value and benefit for the target customer if they use the LL innovation?
3. **Channels:** Define the potential channels that the LL will implement in the business model in order to reach clients.
4. **Customer relations:** Specify what kind of customer relationship the LL will have in order to attract new customers/users, as well as retain the already existing customers/users.
5. **Revenue streams:** How will the LL financially feed its business model? Define the ways of paying and the customers' boundaries on the willingness to pay.
6. **Key resources:** What are the key resources that the LL will need to achieve its the business model goals and ultimately create a value?
7. **Key activities:** What are the key activities that the LL will need to carry out for achieving the business model goals and ultimately create a value?
8. **Key partners:** What kind of partnerships are needed for creating the value of the LL's business?
9. **Cost structure:** Focus on defining the fixed, recurring, variable and one-off costs.

³³ <https://www.pimcy.nl/en/business-model-canvas-lean-canvas-and-strategy-sketch-compared/>

