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D 2.2. FOOD SYSTEMS APPROACH AND OBSERVATORY – CHALLENGES AND CONCEPTS

DELIVERABLE 2.2 FOOD SYSTEMS APPROACH AND OBSERVATORIES

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FOOD SYSTEMS APPROACH AND OBSERVATORY – CHALLENGES AND CONCEPTS

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Executive summary

This report presents work aiming towards a Food Systems approach that is suitable for the RIPE programming within the FutureFoodS Partnership. The report is written for the FoodPathS consortium members and relevant partners of FutureFoodS, and based on a combination of literature reviews, workshops and forums. The objective is 1) to give a brief overview of the concepts of Food Systems (FS) approaches, 2) to propose how FS approaches may support different activities of a FS partnership, and 3) to present ideas and first test of a tool for engaging stakeholders to the subject of FS transition. After an introduction to the methodology, in section 3 we touch upon several aspects of systems approach in the context of Food Systems, here among the constructivist approach, the concepts of leverage points, and the DPSIR - Drivers, Pressures, State, Impact and Response model of intervention. In section 4.1. we focus calls and strategic programming and the interactions with stakeholders. We argue that funded projects should tap into this basic concept of a FS approach. In section 4.2 we report on Food System observatory initiatives that were identified in a first literature and web screening. These initiatives are important and highly relevant as a starting point, however the SRIA premises that monitoring and reporting is fragmented and lack important aspects – especially the FS contributions to societal and environmental goals – seem still valid. Finally, in section 5 we propose further steps to encourage the adoption of an FS approach.

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1. Introduction

The following report presents work towards grasping the different challenges and concepts of a Food Systems approach that is suitable for the RIPE programming within the FutureFoodS Partnership (formerly the Partnership for Sustainable Food Systems). A Food Systems approach suitable for research, innovation, policy and education will need to cover various practical aspects of governance and activities within a partnership. Specifically, portfolio management; call mechanisms and call text; science to policy activities; and observatory activities. However, no single definition of Food Systems exists, as Food Systems operate at different scales from the global to local levels, and they are often embedded in specific locations and environments (Braun et al. 2021). Moreover, from a constructivist epistemology viewpoint, the (food) systems do not exist in nature or society per se (Le Moigne, 1977). According to, constructivism (philosophy of science) - Wikipedia) systems models are constructs aiming at representing complex phenomena, which cannot be reduced to simple causality or deterministic processes, but are in continuous development. Therefore, it is not surprising that the Food System concept alludes to a wide variety of views on the interactions between the different aspects of a system, and that different definitions have diverging views on which components and dynamics are key, when taking a Food Systems approach (Brouwer et al. 2020). The deliverable specifically reports on recommendations for future calls in the FutureFoodS partnership and first findings related to a Food Systems Observatory. As regards principles and practices of science advice from a Food Systems approach this was reported in FoodPaths deliverable D6.1.

1.1. Objectives

The objective of this work is to answer the questions regarding the challenges and concepts of the Food System approach. Thus, the objectives for the coming work described and planned in this report are:

- to give a brief overview of the concepts of Food Systems and different approaches.
- to propose how in practice FS approaches may support activities of a FS partnership , specifically requirements in open calls for project proposals and development of a Food System observatory.
- to present ideas and first test of a tool for engaging stakeholders in problem-solving from a FS perspective with a focus on FS transition.

The report has been written for the FoodPathS consortium members and relevant partners of FutureFoodS.

2. Methodology

The task is based on a combination of desk studies and survey/interactive activities.

2.1. Review

A literature review based on a scoping review has been conducted based on search terms such as ‘Food Systems Approaches’, ‘Food Systems’, ‘Food Systems Concepts’, and ‘Observatory’, and included both grey and academic literature. The searches were carried out in the following databases: Google, Google Scholar, Scopus, and on EU databases. We carried out a pre- liminary assessment to ensure that the identified reports and papers would be relevant for the further review. The objective is to further develop the concept and approach presented in Halberg & Westhoek (2019) with a focus on the theoretical and practical background for identification of critical characteristics such as feed-back loops, leverage points and blockings. This will serve as input to scoping and formulation of call criteria (with WP3) and for identification of key aspects to be included in the template for a FS Observatory.

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A first selection of pre-reviewed literature on Food Systems and observatories is cited in the current report, and listed in Appendix 1. In total more than 110 relevant articles were so far pre-selected and will be part of the review in the deliverable D2.4.

2.2. Workshops and Forums

A Part of the deliverable is informed by knowledge gathered during forums, such as the WP3 Funders Forum, and workshops such as the one with consortium members during the Annual Meeting 2023.

The task used an interactive gaming approach to test and receive input from stakeholders re. identification of FS and their feed-back loops, leverage points and blockings for transitions (see 5.2).
Together with T6.1 and WP3 we organised a series of focus group interviews with experts and project coordinators with experiences in addressing systems approaches and inter- disciplinarity. Results were used for WP3 (recommendations alignment of funding strategies) and for FS approach – and where relevant – for the FS Observatory recommendations. Specifically, the three webinar focus groups were organised primo April 2024 in time to give input to a joint T6.1-WP3 workshop within the WP3 Funders Forum event on 23/24 April 2024 in Brussels (section 4.1).

At the FoodPathS annual event back-to-back with ERIAFF annual meeting in Seinajoki, Finland, June 12-13, 2024 we presented and discussed systems approach for science to policy advice, call requirements, FS observatory and options for further development and use of (elements of) gaming with stakeholders. Inspiration and results from this guided the finalization of D6.1 and this D2.2 and future work towards D2.4.

First ideas of using a Food Systems approach to define the needs and focus of a Food Systems observatory were presented to the SCAR SWG FS at a workshop September 12, 2024 (Annex 2). Responses from this mini-workshop with members of SCAR FS will guide further use of focus group interviews towards D2.4 and ensure continued dialogue and collaboration with SCAR FS “Priority Action: Monitoring and Accelerate FS Transition”.

3. What is a Food Systems Approach?

The concept of a Food System approach (FS approach) has risen to popularity among researchers, politicians and actors working with or within the Food System over the past 20 years, as for example described in the “Nutrition and Food Systems “report by the High Level Panel of Experts on Food Security and Nutrition (FAO, 2017). However, questions regarding who, what and how such an approach is defined and operationalised remain (Brouwer et al. 2020). According to Halberg & Westhoek (2019), a Food System (model) is one that incorporates all elements related to production, processing, distribution, preparation, consumption, and disposal of food. This represents a movement from a linear conception, and thinking of food production and consumption, to a complex system thinking (den Boer et al 2021). From the onset we should acknowledge that the Food Systems are not considered to be a natural phenomenon, but they are models or concepts defined for a specific purpose. Thus, from a constructivist viewpoint, what is included in a Food System and how the elements are represented is a choice made by the modeller and based on purpose, values, knowledge and other characteristics.

The real value of a FS approach is that it includes (enables) a focus on the interactions between the key elements of the system (Olafsdottir et al., 2018) and the desired and un-desired outcomes in terms of food security, dietary health, environmental and climate impacts etc. From a Food Systems transformation perspective, the advantages should be to better identify and consider systemic lock-ins, feedback loops and trade-offs, which characterises the true “complexity” of a system. Moreover, the FS approach should

pinpoint synergies in terms of changes in one part, which may reinforce positive changes in other parts or outcomes.

SAPEA (2020) used a comparable definition: *Complex systems, like the Food System, are by definition non-linear, interconnected, multivariable, self-evolving, and dynamic, making it difficult to predict and control. Intervening requires continuous re-assessments, readjustments, adaptations and iterations to counter biases, unexpected consequences, unforeseen reinforcing feed-back loops and other perverse effects (SAPEA 2020, shortened).*

According to the constructivist approach to studying Food Systems one should acknowledge at least three perspectives on the Food Systems approach: the Ontological, the Functional, the Historical/genetic (Le Moigne, 1977; see Figure 1).

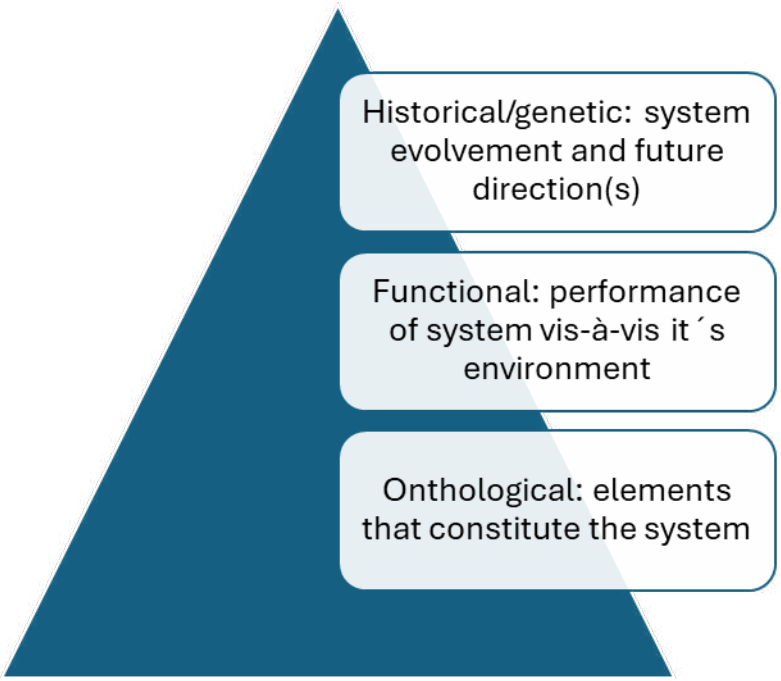

Figure 1The three perspectives on the Food Systems approach to be acknowledged; after Le Moigne, 1977.

According to Le Moigne (1977), using the ontological perspective, Food Systems will be described according to the bio-physical and socio-economic elements (farming, food processing, logistics, human nutrition, consumer attitudes, etc.) in a more or less static representation. While this has its purpose, adding a Functional perspective will include assessments of the systems purpose including different actors' objectives, their interactions with other actors – e.g., the exchanges along value chains - including people's reactions as part of feed-back loops: blocking or reinforcing developments initiated in other parts of the Food System (Olafsdottir et al., 2018). This may also include determinants of food choices and food waste, and power relations across the system. Moreover, this perspective focuses on the outcomes in terms of products (amounts and quality attributes), nutrition, environmental impacts, resilience, reproduction of key system nodes and food/fiber/energy self-reliance. Finally, the historical/genetic perspective address the systems from the question of why and how it has developed into the current form and status and how it may be changed, which – obviously – is important in relation to objectives for Food Systems transformation towards increased sustainability (E.C. Food 2023)

Thus, the search for leverage points should build on understanding of how drivers of change may impose new objectives on Food Systems, how new technologies or social innovations may change power structures, reflexive learning and other interactions between actors and the resulting systems outcomes

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and division of benefits. And, importantly, identifying barriers to change, lock-ins, negative feedback loops, or simply lack of ideas and motivation (Le Moigne, 1977).

Donella Meadows defines leverage points as places within a complex system where a small shift in one thing/element can produce big changes in everything/the whole system (Meadows, 1999). Based on decades of applying this concept in many contexts Meadows ordered the types of leverage points in terms of their potential influence – and degree of changes they would require in a given system (Figure 2).

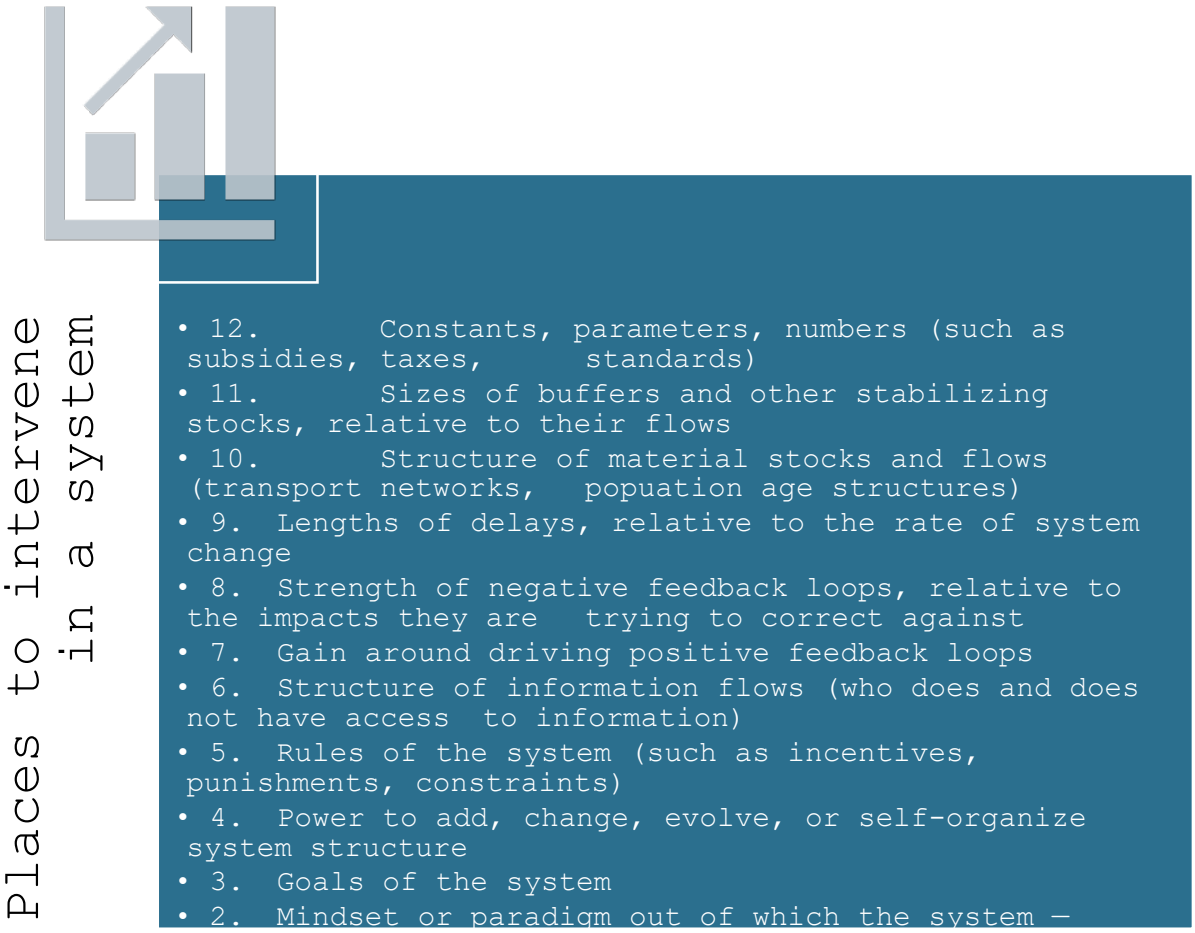

Figure 2. Places to intervene in a system in increasing order of effectiveness (Meadows, 1999)

The idea of identifying leverage points in a (food) system demands a rigorous analysis of functions, actors, objectives, power relations and other aspects of specific Food Systems, which again even may be a part of dedicated research projects under the open calls of FutureFoodS.

Following this ordering of leverage points, (12) collecting data in the form of parameters, indicators will not in itself be a powerful leverage for changing the Food Systems – but given they contribute to driving positive feedback loops (7) and – potentially – changing the access to information (6), the rules (5, e.g. regulation of food product labels) and power balances (4) in Food Systems, then carefully selected data may play an important role. Thus, in developing ideas for a FS observatory this perspective may add an important insight to prioritizing the indicators for monitoring and evaluation.

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In addition to the understanding of leverage points and feed-back loops in systems theory, the DPSIR approach is relevant to mention in the context of Food Systems approach. DPSIR - Drivers, Pressures, State, Impact and Response model of intervention - is a causal framework developed by the European Environment Agency (EEA) in 1999 and OECD in the 1990s, with the specific aim to evaluate environmental/ecosystem changes in relation to socio-economic influence and pressures.

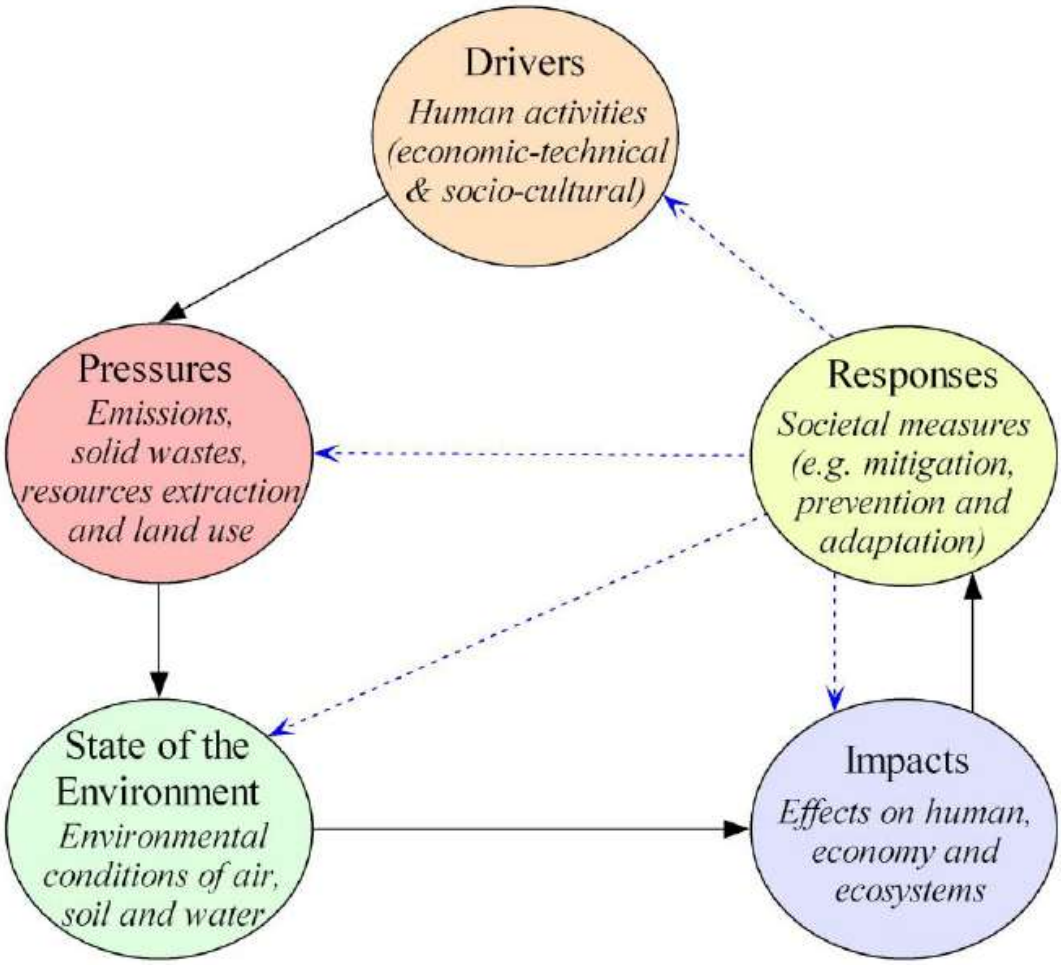

Figure 3. Schematic representation of the European DPSIR framework (source: Song 2012)

The DPSIR approach has been widely used by research and government studies, most of them with the aim to support policy-decision making on the basis of scientific research projects. A review of 21 studies by Tscherning et al (2012) concluded that the framework model is useful due to its ability to integrate multi-disciplinary knowledge from different stakeholders and for its ability to show solid data-based evidence, and its ability to provide for alternative decision options. More recently, the framework has been used in a wider range of context and with modifications as to improve the effectiveness for policy implementation (e.g. Carnohan et al 2023). The DPSIR framework may add functional and genetic descriptions to Food Systems models and to interpretations of data and the expected impact pathways of research project outcomes and policy impacts.

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4. Use of FS approach in R&I partnerships

To ensure a Food Systems approach is practical in nature, and can bring about positive change, Braun et al. (2021) posit two criteria; 1) the definition should be suitable for the purpose at hand, and 2) it should be sufficiently precise to define domains for policy and programmatic priorities, without excluding any aspects of social, economic, or environmental sustainability.

Within the future partnership, a Food Systems approach will be needed to guide the work done within several key activities. Namely R&I policy advice, transnational funding via joint calls and strategic programming, including portfolio management , observatories, and living labs. To ensure that a Food System approach is both fit for purpose and specific enough to guide activities and work within these four areas, we will discuss the opportunities and needs of stakeholders within the sub-activities of Calls and Strategic Programming and the FS observatory. The FS approach for Science-advice has been addressed in D6.1. (SRIA 2.0 and Science-Policy Interface).

4.1. Calls and Strategic Programming

The SRIA for the FutureFoods was developed through wide consultations and workshops led by a team initiated by SCAR SWG FS and DG Research/Food2030 team. Via this process it was generally acknowledged that a partnership and R&I program needed to build on and strengthen a Food Systems approach following the ideas presented in section 3. Thus, the four thematic areas of the SRIA were seen as inherently interconnected, and the calls of the partnership were expected to request and ensure that projects funded tap into this basic concept of a FS approach. Therefore, FoodPathS identified a need to support this endeavor through an own WP on “Building a Food System co-funding network and aligning funding strategies”. This implies thinking and working towards a transformation from established funding schemes and designs towards more co-creation based funding approaches respecting the needs of public authorities and researchers as well as providing the necessary room needed for stakeholder engagement and participation following the idea of a systems approach. The main target group of WP3 are funders, both public and private, on regional and national scale and from different sectors of the Food System. Hence, FoodPathS WP3has investigated through different activities and methods how Food Systems approach is already present in funding schemes, what expectations exist, what hinders are present and how elements of Food Systems approach could be integrated practically, e.g. as requirements in the joint transnational calls under FutureFoodS.

Between October 2022 and February 2023, WP3 conducted 16 interviews with public and private funding bodies from 11 countries with the aim to grasp the current status, expectations and barriers in funding practices. Looking at systems approach, many of the interviewees indicated that a holistic or systems approach is needed, also to overcome funding programmes that act in silos. Several good examples were mentioned). Another example is the multidisciplinary approach in a resilience program were collaboration was stimulated and needed between five projects in the areas of health, food and soil (more info in Deliverable 3.1 ”REPORT ON FUNDERS ENGAGEMENT AND FORUM AGENDA”).

To dive deeper into good practice examples, WP3 performed an analysis of existing funding programs and their transnational calls (under task 3.3 “Aligning transnational call procedures and funding strategies in a systems approach” with FZJ as WP leader and AU-ICROFS as task leader with contribution from Cariplo, IRWIR PAN, Philea, FZJ, SeAMK, and ZonMw). A report was published on the FOODPathS website in June 2024 (https://www.foodpaths.eu/resource/how-is-the-food-systems-approach-implemented-in-call-for-funding-read-the-foodpaths-analysis/) and final results of the analysis will be described in the deliverable 3.2 (M30).

In brief, the report summarizes an analysis of 21 calls representing a diversity of programs to learn from (e.g. ERA-nets, HEU Partnerships, regional calls, HEU Framework Program and Foundations). The analysis focused on how a Food Systems approach (FSA) can be implemented into future call mechanisms. Based on present analysis, it can be recommended to take the following into account when preparing calls within the HEU FutureFoodS Partnership:

1. Provide a definition of systems approach or a clear explanation of what is meant;
2. Be mindful and consistent with terminology, e.g. when using typical elements of a systems approach such as multi-/inter-/trans-disciplinarity;
3. Cross-disciplinarity, stakeholder engagement, and multi-actor approach are highly demanding and also of great relevance for a systems approach call; think about where and how to ask for these aspects and consider the differences between the concepts;
4. When applying a systems approach it is important to consider both synergies and trade-offs;
5. Think about how impact shall be achieved by the projects, how the Food Systems approach contributes to impact and provides guidance and support towards applicants;
6. What additions to the proposals are sensible and what shall they contain (e.g. impact plan, Dissemination, Exploitation and Communication plan, stakeholder engagement plan, implementation/ valorisation plan etc.); adapt to the systems approach and consider also follow-up and adjustments over time (revisiting the plan);
7. Networking activities facilitated at program level can be valuable to align and/or collaborate with other projects or programs but they need to be backed up with dedicated resources (they might even be a necessity for co-design and co-creation);
8. Be open to new funding instruments beyond classical projects (e.g. knowledge hubs) to create mechanisms for fostering connectivity, co-creation and inclusiveness

Moreover, to connect and engage with funders and stakeholders along the funding cycle, WP3 has performed a series of 6 Funders Forum events. The last event took place in Brussels on 23/24 April 2024 and was specifically used to enable knowledge and information exchange to prepare for future funding activities and to foster transformation through co-creation towards a systems approach. The following questions gave the framework for the event:

- How can a Food Systems approach be implemented in a funding program? What are important elements to consider? How can impact be enhanced?
- What are good examples from past calls to learn from?
- What are challenges and barriers for project partners to carry out a Food Systems approach and for funders to fund projects with a Food Systems approach?
- How to realize inter- and transdisciplinarity within an overall Food Systems approach? How to shape the future calls of the Partnership?

The results of the call analysis mentioned above were presented and findings discussed.

The T2.2. collaborates with T3.1 and supports the call analysis with points from literature and from the interactions with stakeholders via focus group interviews. Specifically, we have aimed to ensure that experiences from leading scientists as regards interdisciplinary and systems approaches in projects funded under the mentioned calls give a reality check on the possibilities for responding constructively in project proposals to the inclusion of requirements for systems approaches in open calls under the partnership.

INSIGHTS AND EXPERIENCES ON SYSTEMS APPROACH IMPLEMENTATION AND CROSS-DISCIPLINARITY

To get insight into the options and possible challenges for demanding a systems perspective to project proposals we invited scientists – including project coordinators – involved in projects under the reviewed transnational calls to reflect on their experiences and FoodPathS ideas for Food Systems approach. A qualitative data recording method, specifically "focus group methodology" was chosen to allow deep insights from a limited sample chosen from the selected calls as illustrated in fig 1.

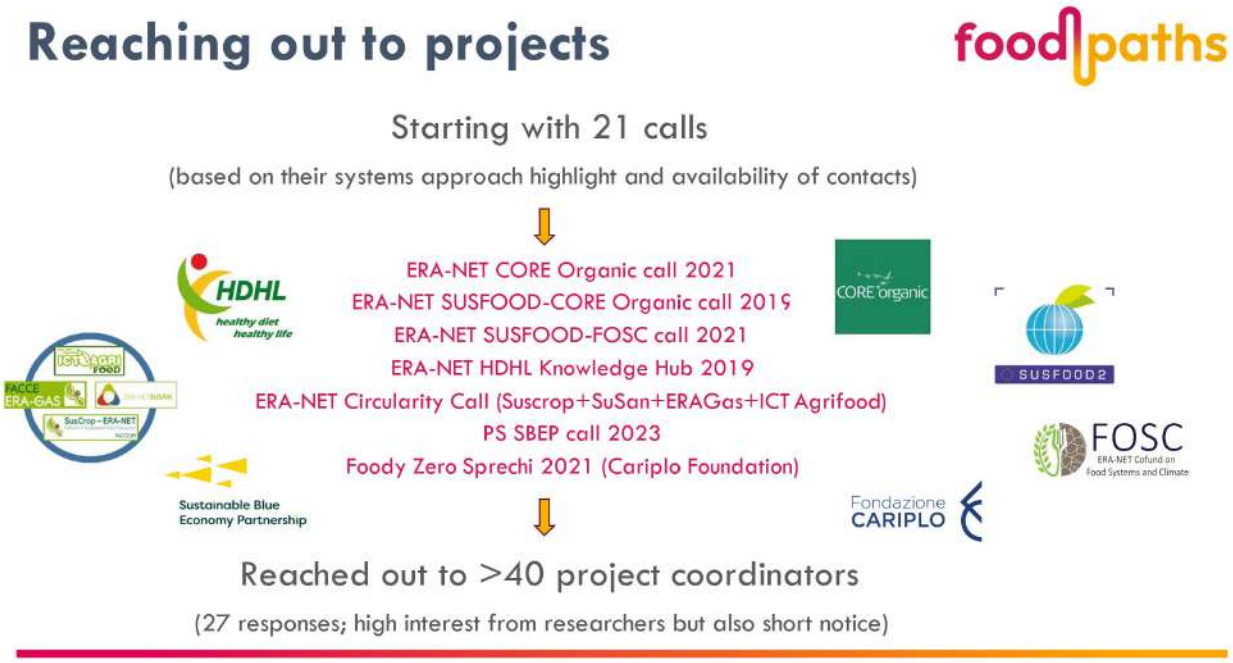

Figure 4. Relation between calls identified and analyzed in WP3 and the leading scientists invited for focus groups

The overall GOAL OF FOCUS GROUPS was to learn what leaders of the invited projects think about food/agriculture research that is interdisciplinary and systems oriented. The expected outcomes of the effort were to synthesize a set of experiences including identifying options, challenges and barriers for using a Food Systems approach in R&I projects and – similarly – as regards the implementation of inter- and trans-disciplinarity in practice.

A standard FOCUS GROUP PROCESS was applied – with online contacts only. From the initial survey of possible participants 27 Invitations were sent out which resulted in 17 Participants divided in 3 Sessions of each 2 Hours. The sessions were led by 1 Facilitator and supported by 1-2 Co-facilitators, who a priori agreed on internal rules for intervention and -specifically – the formulation of guiding and supporting questions to raise initially respectively during the sessions.

Each session was initiated with a welcome and a short introduction to our expectations from participants:
Participants were expected to share their knowledge and opinions on:

- Food Systems
- Transformation towards sustainable Food Systems
- Systems oriented Research and Innovation

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Participants were encouraged to talk about:

- Any combination of disciplines which could best promote new knowledge and innovation
- The barriers faced when acting within the Food System
- How relevant these topics are towards the overall goal of interdisciplinary and systems-oriented food research

The guiding SYSTEMS APPROACH – QUESTIONS

- What do you do in your project that you consider a Food Systems approach? Why?
- What would you do to improve the systems approach in your project? How do you take important interactions into consideration? Could you describe an ideal systems approach?
- Which disciplines do you find most relevant to produce the knowledge required for transforming the Food Systems?

Figure 2 demonstrates the different understandings of what a Food System approach means as expressed by participants. In general, the consensus was that to merit the term "systems approach", a project should address more than one aspect of a problem and include more actors, factors, components or perspectives from the context of the chosen topic, - whether in a value chain, production process or circularity perspective. This was expressed in different ways but within an overall acceptance of needs for a wider perspective than classical mono-disciplinary research as given in selected quotes from participants.

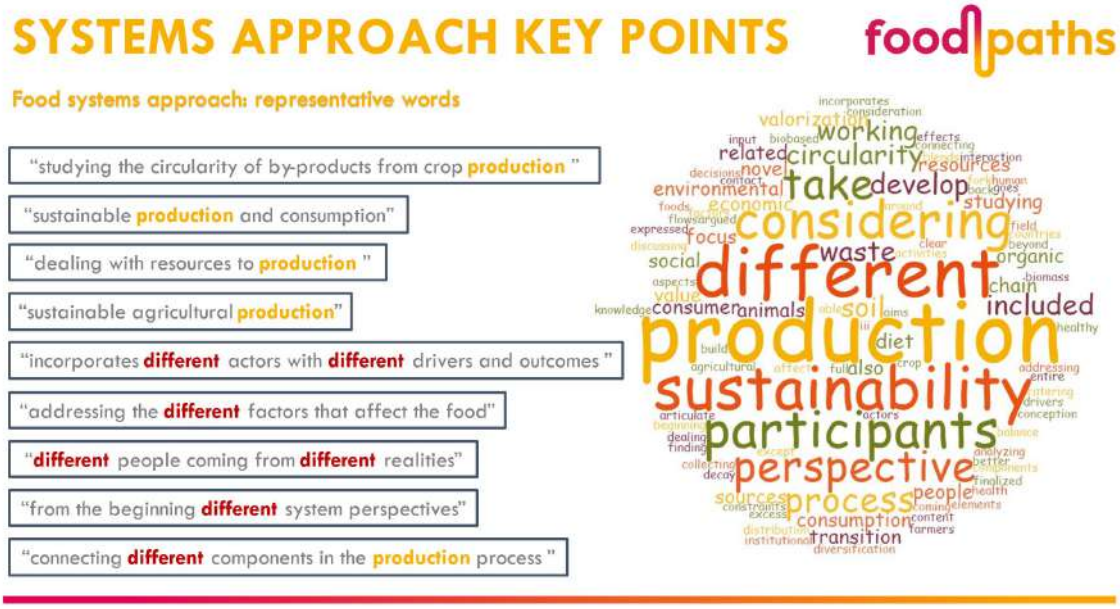

Figure 5. Understanding of a Food Systems approach as expressed by project representatives

SYSTEMS APPROACH KEY POINTS:

Food Systems approach: selected participant quotes

"The balance between sustainable production and consumption, **the link from field to fork**: focusing on institutional catering to develop more sustainable agricultural production practices"
"considering circularity of the system **from soil to blends, to animals and back to soil** with waste valorisation"
"dealing with **resources to production**, thinking about **nutritional content** and **consumer preference**"

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Methods for improving the systems approach

Include additional stakeholders and actors such as policy makers, consumers, retailers and distributors
Tools able to find expertise to deal with consumers and on legal requirements, especially covering the complexity of legal difference between countries
Understand how data can be translated across the different disciplines and actors and improve communication across disciplines

The ideal systems approach

Quantitative modeling to address interactions and trade-offs, participatory approaches
Research projects in which we consider the impact of any potential change on different aspects of sustainability
Where different knowledge can be combined trying to find a real solution

REQUIREMENTs in calls for FS approach? – QUESTIONS

- Do or did you find it necessary to have a systems approach in your R&I applications in the partnership calls?
- Do you find it realistic to require a systems approach in R&I applications in the partnership calls?

REQUIREMENT - KEY POINTS

"Absolutely necessary" ; "Essential"

"A real Food System approach is needed and requires a multi-actor approach"
"What would the solution be if a systems approach isn't taken?"

However, participants also identified challenges to a Food Systems approach:
Difficult interactions between disciplines and actors should be tackled explicitly – and may require specific skills with coordinator or a separate knowledge broker
Difficult to get industry partners included and working together across the system
Including all possible interactions is over ambitious – thus a sub-system needs to be identified for the projects focus
Proven impacts require more time for systems oriented projects

The participants of the focus groups were asked to give recommendations for how to require a systems approach in calls, with the following sub-questions:

- Achieving balance in project consortiums:
  - Defining fields in system approach.
  - Living labs for on-the-ground testing and implementation.

- Requiring a conceptual description of the system in project applications:
  - Sharpening project ideas and stakeholder identification.
  - Facilitating deeper analysis and connection between research ideas and subsystems.

- Enhancing R&I applications:
  - Requirement for a realistic system approach in project calls.
  - Three-step process: depicting the system, identifying subsystems, and aligning with project goals.
  - Importance of communication, subcontractors, and post-evaluation for sustained impact.

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Based on a synthesis across the three focus groups responses the FoodPaths team defined the following recommendations: Scientists -at least a significant group - may understand and support the needs and rationale for a Food Systems approach and may possibly apply this in proposals and when carrying out R&I in consortia.
Thus, a FOOD SYSTEM APPROACH may be applied in a Four-step procedure:

1. Depicting a Food System from an overall perspective.
2. Defining the relevant sub-system, which the project will address in its activities.
3. Defining the scientific disciplines required to cover the R&I aspects of the sub-system and ensure they work in inter-disciplinary collaboration across the nodes of the sub-system – according to the aim of the call topic.
4. Identifying the stakeholder types relevant for the sub-system and ensure representation in consortium.

Additional recommendations based on learnings from the focus groups:

1. Consider including a facilitator for inter- and trans-disciplinary working nodes (a professional knowledge broker).
2. Consider incentives to involve actors that are not researchers.
3. Consider long term projects.

In addition to the specific recommendations on how to require a Food Systems approach, the focus groups debated the need for inter-/trans-disciplinarity (and how this logically is linked to a systems focus). In brief, the questions and key responses recorded included:
INTER/TRANS-DISCIPLINARITY QUESTIONS

- Is there a benefit to working with diverse teams of people? What are the benefits?
- Are they worth the challenges of this approach? Do you work more with interdisciplinary teams or with multiple actors?
- Which combination of research disciplines/actors would you expect have the highest potential to provide new knowledge and innovation for transforming Food Systems?
- What are the barriers/challenges for implementing inter-disciplinary and systems-oriented R&I? How do you overcome these?

INTER/TRANS-DISCIPLINARITY: KEY POINTS

The benefit of inter/trans-disciplinary interaction:

- ensure goals are aligned and facilitate quality research
- The same problem is discussed in different perspectives
- Solve Food Systems issues
- Ensure that innovation does not generate new constraints
- The only way for relevant changes, improvements, impact

Combination of disciplines:

- dependent on the topic, social, economic, environmental sustainability indicators

(stakeholder types to give perspective via interdisciplinarity)
Farmers, cooperatives, associations, academia, research institutions
Technology developers, innovators, food producers, packaging, marketing
Governments and policymakers, NGOs, food industry, start-ups, retailers, consumers

Challenges for implementing inter/trans – disciplinarity:

- communication between disciplines and actors
- Deciding which are the "unnecessary" disciplines
- Different levels of innovation views in companies
- Working with a diversified team of actors
- Receiving reliable data from companies

Overall, there was strong support to the need for inclusion of **different disciplines in a systems approach** and making sure these were sufficiently **integrated** to actually give mutually enriching and re-inforcing research leading to more robust and relevant innovations.

The learnings and conclusions from the focus groups in combination with the theoretical considerations for a Food Systems approach and the conclusions given were presented to the FutureFoodS funders forum at a workshop 23/24 April 2024 in Brussels (see above). The results were received with interest by the funders, who found them consistent with the recommendations given based on the previous analysis of the 21 calls. On this basis T2.2. continued to refine the recommendations for explicit requirements of an FS approach in project proposals in open calls under the partnership.

Conclusion and recommendations for call criteria and evaluation:

Based on the overall explanations of the key elements of a Food Systems approach (section 3) and how this may be understood by scientists we propose that requirements be included in calls for R&I proposals. It seems important that project proposals demonstrate an understanding of how the particular focus of their R&I ideas may fit into and depend upon several nodes of a system, different actors and the feedback loops or lock-ins, which ultimately will influence the successful implementation of the projects outcomes. Such a description should therefore go beyond the simple ontological system model and consider functional aspects including hypotheses re. relevant drivers for change and leverage points relevant to the challenge addressed.

Thus, it would be advisable that coming calls under a Food Systems partnership request that consortia applying for funding address, how they understand their particular R&I idea vis-à-vis the Food System they consider it relevant for. Proposals should be requested to:

- explicitly define a sub-system within a larger Food System, in terms of elements in the system and the interactions among them, which the proposal will include in the work and represent in the competences and stakeholders involved
- explain how the expected benefit of the new knowledge and/or innovation gained might depend on interactions between these elements of the sub-system – and potentially with other parts of the overall Food System
- explain – in e.g. Impact pathways – how the projects outcomes may successfully contribute to a Food Systems transformation by targeting specific leverage points or barriers for change
- Define the scientific disciplines required to cover the R&I aspects of the sub-system and ensure they work in inter-disciplinary collaboration across the nodes of the sub-system – according to the aim of the call topic
- Identify the stakeholder types relevant for the sub-system and ensure representation and clear roles in consortium

According to the focus group interviews such an interdisciplinary systems approach is possible but will be interpreted in many ways depending on the topic and the experiences of the consortia participants. Therefore, to ensure that a certain level of consideration is given by all consortia, it is necessary to include equivalent evaluation criteria in the guidelines for the experts invited to evaluate and score the proposals.

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4.2. FS Observatory

As part of the focus on transforming Food Systems, there is a clear need to gather, analyse, and utilise data on Food Systems from multiple sources to allow monitoring the performance and to guide FS transformation efforts (e.g. Rutten et al 2018; European Commission 2022). Inspiration and argumentation for such a structured and transparent data approach may be taken from the European Environment Agency (EEA). Founded in 1994, the EEA has consistently produced assessments based on quality-assured data on environment topics such as biodiversity, air quality, transport, and climate change. The data and assessments are closely linked and aimed towards to the European Union's environment policies and legislation, with the "State and Outlook of the Europe's Environment" (e.g. EEA 2020) as the flagship publication of EEA. The data feeding into these EEA reports are gathered through the partnership European Environment Information and Observation Network (Eionet). Here, a vast number of 400 institutions from 38 countries contribute with data on the various environmental topics and indicators, most of which can be found directly on the EEA website through the website interface in the form of charts, timetables and maps.

While the term "observatory" usually refers to a **location** that is equipped for the observation of natural phenomena, here we use the term "observatory" referring to a **digital platform** or "dashboard" in which data are stored and made publicly accessible. Hence the term "Food Systems Observatory" is envisioned here as a data interface, a community of practice, and a data management service that will allow monitoring, analysis, and foresights across the European Food Systems (SRIA 2023).

Thus, according to the SRIA, *"The Observatory will be a platform, community of practice and data management service for:*

- Developing new common metrics on the sustainability performance of European FS connecting existing databases
- Developing and piloting new forms of data collection on FS from different sources
- Developing methods and protocols for combining data on partial aspects into coherent FS descriptions and assessments for informing governance and policy development at different scales.
- Establishing practices for reflexive monitoring and learning including stakeholder engagement on potential transition, pathways, leverage points and current progress."

The background for this was - according to the authors that (quote):

"The current monitoring and reporting of FS activities, outcomes and drivers, are only available in a fragmented way.

- *Methods for data collection frequently lack scientific underpinning and harmonisation.*
- *Existing databases fail to cover the entire span of value chains, across all member states and are incomplete in their coverage of FS' contributions to societal and environmental goals.*
- *A particular omission is data on the midstream actors in FS, which involve food aggregators, processors, distributors, procurement and food services*."

In the section here we report on two FoodPathS activities contributing to the development of a basis for the FS Observatory. First, we organised a workshop in 2023 that facilitated a dialogue between 60 stakeholders and experts, aiming to define objectives and expectations to a Food Systems-oriented observatory. Second, results from a literature- and web-search in 2024 reported hereunder gives a first insight into the current state and practices for Food System Observatories that are currently established.

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Regarding the FoodPathS workshop organised at the EC Food2030 event, December 2023, the recommendations from the workshop for an FS observatory are summarized here:

- Prioritize the establishment of an observatory based on an inventory of existing knowledge and capacities.
- Focus on harmonizing existing research data, particularly in social sciences, within a holistic Food Systems approach. This approach avoids siloed data collection and provides a comprehensive understanding of the issues at hand, enabling more effective decision-making.
- Focus on environmental impact monitoring and open knowledge sharing practices to inform decision-making effectively.
- Prioritise transparency and collaboration, involve stakeholders at all levels
- Ensure that data collection is comprehensive and is fed from different perspectives.

It was suggested at the workshop to explore to which degree existing data sources may be synthesized with a FS lens and allow interpretations of Food Systems performance. Such data may include:

- Food trade and prizes
- Consumption patterns and consumer opinions
- Agricultural systems
- Impacts on climate and environmental indicators

Following up on the outcome of the abovementioned workshop, we made a preliminary literature- and web-screening for the current occurrence of FS Observatories. We found that indeed several concrete initiatives have transpired over recent years. Without pretending having s a complete overview of the literature and initiatives, the following listed initiatives were identified to conform with our conceptual definition and understanding of FS Observatories.

A well-established and institutionalized data-platform on agriculture and food-systems is an initiative from the EU commission published as the "**Agrifood Data Portal**" via the link: European Commission | Agri-food data portal (europa.eu). This data platform does not use the term "observatory", however it meets several if not all of the criteria as mentioned above. Within the data platform, one can find, analyse and abstract comprehensive data on:

- Agro-Food markets: hereunder prices, production volumes, imports and exports
- CAP (Common Agriculture Policy) indicators: comprising an extensive set of data on different aspects of the European Agro-food industry, hereunder farmer income support, jobs, productivity, environmental actions, soil- and water conditions, biodiversity, use of pesticides, context indicators, and more.
- Farm economics: databases, economic results, analyses
- GEO portals: A hub providing links to access the Member States' geoportals with spatial data.
- Further information on sustainability indicators, financing, country fact-sheets, and food-supply data-sets.

In line with the concept of data observatories, the recent EU-project SUSFANS (Rutten et al 2018) also aims to build a set of metrics, models and foresight tools to strengthen the European food- and nutrition security in a holistic, integrated way. The "**SUSFANS visualizer**" tool https://www.susfans.eu) gives an integrated insight in European diets and Food Systems, based on metrics and models developed in the project; an explanatory report on the background and multi-layered index of sustainability index is downloadable from the SUSFANS website (reported by Achterbosch & Oudendag et al 2019, SUSFANS WP12).

Another recent EU initiative relevant for Food Systems is the **"Farm Sustainability Data Network" (FSDN)**. The network is an initiative from DG Agri and comprises a follow-up/evolution of the FADN network (Farmer Accountancy Data Network), that for more than 60 years has collected farm-level economic data

from -supposedly - representative samples comprising more than 80.000 farms representing 3.7 million farms in the EU. The objective of FSDN is to improve the impact on research and policy making in the EU (DG AGRI A.2 Analysis and Outlook unit, 23 November 2023). The initiative is still in its early stages with first reporting scheduled for 2025, and data available at EU level before 2027.

Closely related to the above EU data-platforms and networks, an EU based expert group called **Agri-Food Chain Observatory** was established, information on which can be found in the following web-link: Register of Commission expert groups and other similar entities (europa.eu). This expert group consists of 48 organisations (hereunder trade- and business organisations, NGO´s, and professional organisations), representatives of the 27 member states and 8 observers. The expert group serves the purpose to advise the Commission and provides input to future policies in the EU. Established in April 2024, the group now has a first working mandate for the coming five years. In the public domain we find documents from the inaugural meeting showing the context of the expert group, relating to the concerns raised by farmers during recent farmers protests in the EU. The EU Agri-Food Chain Observatory (AFCO) is therefore one of the first planned deliverables of the expert group. The AFCO specific aim is to better understand the issues impacting the functioning of the agri-food supply chain, to bring facts and transparency to the debate, and to reinforce the trust between the different actors of the value chain.

Arguably the most holistic FS Observatory that we found in our web search is the **Food Systems Countdown Initiative (FSCI**). The FSCI is "*..a collaborative effort to monitor global Food Systems. It brings together indicators that span Food Systems and provides annual analysis to inform policy, business, and NGO priorities and actions. It supports the transformation of Food Systems, so they become equitable, sustainable, and resilient and positively contribute to achieving the 2030 SDGs and other global goals*" (quote is taken from the FSCI website www.foodcountdown.org). The FSCI is also responsible for the Food Systems Dashboard (www.foodsystemsdashboard.org), a web-based data interface that gives access to a wide range of indicators of global Food Systems from multiple sources. A total of 50 Food System indicators were selected from five different themes or domains: (1) diets, nutrition and health; (2) environment, natural resources and production; (3) livelihoods, poverty and equity; (4) governance; and (5) resilience. As such, these indicators together provide for a baseline assessment of the world's Food Systems, while each specific indicator reflects a specific aspiration for healthy, sustainable and just Food Systems (Fanzo et al 2021, Schneider et al 2023). With the initial architecture launched in 2021, FSCI is producing annual publications to monitor the performance of global Food Systems toward 2030, specifically aiming on tracking the progress towards the conclusion of the UN Sustainable Development Goals.

A more specialized/topical database that we interpretate as an FS-Observatory is called **FABLE database**. Founded on the basis of three earlier EC funded projects, EUREMO (EU REformulation Monitoring) Best-ReMaP (Best Reformulation, Marketing and Procurement) and JANPA (Joint Action on Nutrition and Physical Activity), the FABLE database was established which the following specific aim: "*.. to close the information gap between research and end-users by making data collected on branded food and beverages through EU-funded projects publicly available for researchers, policy makers and the public"*. The context here is not only to monitor sustainability of Food Systems but also the healthiness of Food Systems and therefore this can be classified as an initiative in the health domain, unlike the earlier mentioned observatory initiatives. The FABLE database can be found in the following link: https://food-labels-xplorer.jrc.ec.europa.eu/en.

The consumer angle towards Food Systems is the starting point for the "**EIT food consumer observatory**" (www.eitfood.eu) that was launched in 2018. EIT-FOOD gathers and highlights insights into consumer behaviour in relation to food, a.o. through the TrustTracker(c) consumer surveys that measure and monitor the trust of consumers in European Food Systems. The data are however available only as downloadable reports, and not through data portals as for example in FSCI and FABLE.

A final initiative to be mentioned here is the **Global Dietary Database (GDD)**, that was established for over a decade ago with the goal to assess global dietary intakes worldwide, understand how (under)nutrition affects health worldwide, and to create a public resource and dissemination platform (https://globaldietarydatabase.org/). At the moment of writing, an online platform for data assess is in the planning phase.

Name	Thematic focus	Geography	Current state	Public Dashboard/ data platform
Agri-Food Chain Observatory	Economic: Food Value-chain	EU	New initiative	No
Agrifood Data Portal	Agro-Food Markets, CAP indicators, Farm Economics	EU	Operational, updated	Yes
EIT Food Consumer Observatory	Food Consumer surveys	EU	Operational	No
FABLE Database	Nutrition: healthiness of Food Systems	EU	Operational	Yes
Farm Sustainability Data Network	Economy, sustainability: Farm-level data	EU	New initiative	No
Food Systems Countdown Initiative (FSCI)	Holistic Food Systems approach	Global	Operational, updated -> 2030	Yes
Global Dietary Database (GDD)	Nutrition: dietary intakes and impact on health	Global	Operational	No
SUSFANS	Holistic Food Systems approach	EU	Operational	Yes

In conclusion, our first literature and web screening identified several highly relevant initiatives that wholly or partly comply with our definition of a Food System observatory. Several of those initiatives have been initiated directly or indirectly through EU-organisations - e.g. Agrifood Data Portal – while others are more internationally or globally oriented, here among FSCI. We do expect that many observatory initiatives do exist on the member state or regional level that we did not identify during this literature exercise. Out of the eight identified observatories, only few have a truly holistic approach covering substantial parts of Food Systems, while most observatories focus on specific thematic domains like nutrition, food-value chain approach, or consumer confidence.

Thus, the initiatives mentioned are important as a starting point and may contribute to the SRIA idea of connecting existing databases - as confirmed by the participants in the FoodPaths workshop. However, the SRIA premises - that monitoring and reporting is fragmented and lack important aspects especially the FS contributions to societal and environmental goals - seem still valid. In parallel to identification of data sources and monitoring platforms, there seems to be a need for:

- Clarification of the main purposes of Food Systems monitoring as seen from different stakeholders
- Developing approaches which facilitate describing and analyzing the interlinkages between Food Systems elements and the Food Systems outcomes, ie. positive goals as well as negative side-effects

Therefore, and with reference to section 3, we do propose that superposing the DPSIR model on the above-described observatories would be a useful means to understand and identify system relationships in the various parts of the thematic food domains. This hypothesis will be part of the future effort to describe protocols for a FS observatory. A prerequisite for such an approach is to identify more clearly the pertinent questions which a FS observatory should address – as seen from the perspective of different stakeholders and policy objectives. Therefore, in the future process we intend to triangulate three activities, which together may form a basic concept for a FS observatory, that is to be taken further by e.g. FutureFoodS partnership.

From the first angle, we will continue reviewing existing and new/upcoming initiatives to gather and analyse data describing Food Systems; recognizing outcomes from different, integrated, and systems oriented perspectives and with different scales in focus (European vs Global vs.local).

From the second angle we will engage in dialogues with experts and stakeholders – mainly in the form of focus group interviews – to understand and analyse objectives for the potential use of and requirements to a FS observatory. Following this angle, we will test questions such as:

- A Food Systems observatory to what purpose, and for whom?
- How may different data sources and indicator areas be linked and interpreted from a Food Systems transformation perspective?
- What granularity – vis-à-vis level of policy advice and decision making?
- How may other stakeholders use a FS Obs (private sector, civil society, other) ?
- How do we delineate Food Systems at different scales?
- Can we use the DPSIR approach to distinguish “driving forces” from “states” in view of Food Systems transformation?
- How to represent “leverage points”, Feed-back loops and “lock-ins”?

As a pretest of how these pertinent questions may be discussed with stakeholders, FoodPathS co-organised a “micro”-workshop at the SCAR SWG FS meeting September 2024 (Annex 2). The purpose was to pre-test the perceived precision and understanding of possible questions for a set of focus group interviews. The responses gave a first indication of how stakeholders might respond to the questions addressed in future focus groups, this possibly confirming the preliminary results. Several relevant issues were mentioned, some addressing the future process of designing a FS Observatory and others suggesting focus areas for the data and analyses. However, the responses also pointed to the need for a thorough preparation of future participants in focus groups. Also, the results suggest that questions need to be more focused. In addition, follow-up questions may be necessary to steer the dialogue and benefit fully from the planned focus group interview sessions.

The third angle of analysis will seek to extend the theoretical understanding of how a FS approach - including where relevant principles from the DPSIR concept - may guide the definition of a FS observatory, the key data and monitoring principles and approaches to analyses and use from a FS lens. Moreover, we will explore how awareness of different types of leverage points may guide the elements and use of a FS observatory.

By integrating insights from the three methodological angles, we will propose a basic concept for a FS observatory, which will be presented at a dedicated workshop at a FoodPaths event. The reactions and input to this draft concept note will be used to improve the content to be reported in D2.4.

5. Next steps towards Recommendations for a Food System Approach

5.1. Suggestions for an approach that can be tested further

The Game: Facilitating Understanding and Encouraging Adoption

As part of the work on this deliverable, a method is under development to facilitate the understanding of the systems approach, encourage adoption, and ensure continuous development of the approach.

Further, the goal is to be able to focus a variety of stakeholders on existing barriers to change within Food Systems and have them working on common solutions to these barriers; this includes the aim to identify leverage points for systems change. To facilitate this process, a game is being developed where the various elements of the Food System have been turned into seven distinct blocks by using a games analogy. The seven blocks have been presented at the FOODPathS kick-off meeting, translated into a template for case studies and elaborated for over 70 case studies in WP4 and WP7. In this template, additional attention was given to the interactions between players in reaching common objectives while also responding to own priorities. The outcomes have been discussed in a common workshop in the first project year and delivered as D2.1.

A preliminary version of this game was then tested during the first Annual Meeting of FoodPathS in Rome with project partners to discuss a specific Food System relevant for them as partners in a potential partnership (details in Annex 3). The idea of the game is to highlight interactions between actors in a Food System with a focus on a specific challenge, the positive and negative feed-back loops and leverage points, which may encourage, or hamper systems change. In doing so, the Functional and Historical/genetic viewpoints are combined. The aim is to find FS leverage points and other key engagement points at different scales, and to identify requests for knowledge that is relevant for the design of the FS observatory.

At this stage the game-model acted more as a framework lens to guide participants through the seven building blocks of the system, rather than an actual game, and become familiar with the game concept. However, while the game acted more as a framework for discussion, it highlighted several key issues when it comes to operationalising a Food Systems approach. Mainly, it became apparent that the inclusion of stakeholders is potentially problematic. The choice of who is viewed as “relevant” may very much depend on the views and experiences of those responsible for the different projects. This could lead to the unintentional exclusion of relevant stakeholders and perspectives, undermining the legitimacy, and create power asymmetries.

Further, it highlighted the importance of vision and mission in guiding interventions, because the actors (or pieces) and moves (or interventions) were very closely linked to the expected outcome of the interventions. Finally, a key element of the FS approach was identified by all groups as communication, meaning the open communication between stakeholders, and bringing in policy and legislation. Other elements were involvement, awareness, resources, education and knowledge, interaction, and the scales of power.

Thus, the game metaphor and shows some promise when it comes to engaging stakeholders in the operationalisation of the FS approach, and the various benefits and pitfalls of the approach. However, the concept is still very immature, and development is needed. In a next phase, the game will be further developed and tested in 1-2 webinars to decide whether this may serve for further identification of key Food Systems characteristics including leverage points for transition. The main target groups for participants will be civil servants/policy makers within MS ministries involved in designing policies within

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the FS space as well as R&I funders (collaboration with WP3, funders forum) and experts involved in designing FS observatory.

Thus, in the next workshop(s) the participants will be asked to play an imaginary Food System game. Several options exist such as asking the group of players to identify one or more – theoretical - leverage points and ”play out” the consequences of implementing (policies/support) for these leverage points on the evolution (and functions) of the Food System symbolized by the game. Another option will be to discuss the consequences of an external, sudden, shock (like increasing food prices due to inflation, drought, a war).

5.2. Other activities

A literature review on Food Systems has been initiated and is further planned in continuation of SCAR SWG FS papers/reports on FS approach in R&I. The SCAR FS report (SCAR, 2023) focus on R&I needs and knowledge gaps based on a portfolio analysis of EU funded projects. The focus of FoodPaths literature review will be to support the theoretical and practical background for identification of critical FS characteristics such as feed-back loops, leverage points and blockings. This will serve as input to the thematic content and interpretation of the game sessions/focus group interviews, for identification of key aspects to be included in template for a FS Observatory, and for scoping processes in the Futurefoods partnership. The review will continue alongside other activities until end of task 2.2.

6. Annexes

6.1. Annex 1: List of cited literature

Achterbosch T, Oudendag D et al 2019: The SUSFANS visualizer tool for assessing the sustainability performance of EU Food Systems and diets: Methods and explanation. SUSFANS deliverable WP12, https://susfans.eu

Braun, J, Afsana, K, Fresco, L O et al. 2021: Food System concepts and definitions for science and political action, Nature Food, Vol 2

Brouwer, I D.,∗, McDermott J, Ruben R2020: Food Systems everywhere: Improving relevance in practice, Global Food Security Vol 26

den Boer, A.C.L. et al. 2021: Research and innovation as a catalyst for Food System transformation, Trends in Food Science & Technology, Vol 107

Carnohan S.A. et al 2023: Next generation application of DPSIR for sustainable policy implementation, Curr. Res. Env. Sustainability, Vol 5

European Commission, 2022: Proposal for a Directive of the European Parliament and of the Council on green claims. Directorate-General for Research and Innovation

European Environmental Agency, 2020: The European Environment, State and Outlook. ISBN 978-92-9480-090-9, doi 10.2800/96749

Fanzo, J et al 2021: Viewpoint: Rigorous monitoring is necessary to guide Food System transformation in the countdown to the 2030 global goals, Food Policy, Vol 104

FAO, 2017: Nutrition and Food Systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. September 2017. HLPE Report 12

Halberg, N & Westhoek, H (2019): The added value of a Food Systems Approach in Research and Innovation European Commission, SCAR SWG Food Systems Policy Brief

Le Moigne, J-L. , 1977: Théorie du système général. (updated version 194, 2006). Available at : Jean-Louis Le Moigne: Théorie du système général - Théorie de la modélisation : Jean-Louis Le Moigne : Free Download, Borrow, and Streaming : Internet Archive (Sept 2024)

Meadows, D 1999: Leverage Points: Places to Intervene in a system, Sustainability Institute

Olafsdottir, A H; I. Gudbrandsdottir, et al 2018: System Dynamics Modelling and System Analysis Applied in Complex Research Projects - the Case of VALUMICS, Int. J. Food System Dynamics, Vol. 9

Rutten, M, Achterbosch, T et al 2018: Metrics, models and foresight for European sustainable food and nutrition security: The vision of the SUSFANS project, Agricultural Systems, Vol 163

SAPEA, Science Advice for Policy by European Academies 2020: A sustainable Food System for the European Union

SCAR - Standing Committee on Agricultural Research, 2023: Sustainable Food Systems Partnership for People, Planet & Climate

Schneider, K R et al 2023: The state of Food Systems worldwide in the countdown to 2030, Nature Food, Vol. 4

Song, X 2012: A Pressure-oriented Approach to Water Management, Doctoral Thesis, Royal Institute of Technology (KTH) Stockholm, Sweden, ISBN 978-91-637-0429-1

Tscherning, K. et al, 2012: Does research applying the DPSIR framework support decision making? Land Use Policy, Vol. 29

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6.2. Annex 2: Pre-test of questions for stakeholders regarding potential use, needs and design of a Food Systems observatory

SCAR FOOD SYSTEMS SWG

2nd meeting, 3rd mandate

12 September 2024 in Brussels

Purpose of the meeting: start first activities within each priority action. Plan collaboration with FOODPathS (organization of workshops) and discuss contribution to the 6th Foresight exercise.

- Session 1. EC update and Collaboration with other SCAR SWGs SCAR Foresight, SCAR Bioeconomy SWG
- Session 2. Collaboration with FOODPathS
- Session 3. RefreSCAR and SCAR FS SWG priority actions: Monitoring and Accelerate FS transition; FS resilience

***CHAIR**: Monique Axelos, INRAE, FR*

***CO-CHAIR:** Minna Huttunen, Ministry of Agriculture and Forestry (MMM), FI*

***CO-CHAIR**: Niels Halberg, Aarhus University, DK*

At the SCAR meeting on 12 September, Niels Halberg presented – on behalf of FoodPathS – the idea behind a Food Systems Observatory and the planned focus groups and workshops to receive inputs from stakeholders to the draft concept.

SCAR FS Action 3

Accelerating and Monitoring Food Systems Transition – Priority action description and planned activities – presented by Silvia Scaramuzzi, Alicia Fayos and Niels Halberg

Interactive session "Accelerating Food System transition. Which role for a FS observatory and what are key data and indicators?

Following the presentations a brief workshop among SCAR FS participants was organized to address the two questions – please see the following. The purpose was to pre-test the perceived precision and understanding of possible questions for a set of focus group interviews. The two groups gave the following responses:

*1. **What are knowledge needs (R&I)** to establish relevant and timely information on "the state of Food Systems". How do we identify, monitor and assess **leverage points/drivers and bottlenecks** for Food Systems transition?*

Comments:

Understand current indicators and decide if they are still relevant – do we need to adapt?

Monitoring tool for FS transformation. Where is the start + end point? Where are we on the journey?

Need to develop existing tools rather than constantly coming up with "new" ideas. Stress test current tools.

*2. Which information and data across Food Systems are important to support and **assess Food Systems transition from policy perspective**? How may data-based evidence **support policy making** for Food Systems transition?*

Comments:

- Consider economic growth factors to inform industry
- Aligning profitability to sustainability – translate data into opportunities
- Understanding the barriers to circularity in the food + feed chain
- Understand consumer behavior + perception – how will consumers react to policy changes

Covering both questions:

- Common language between policy makers and researchers
- Behavior change of consumers is needed to move towards more sustainable, healthy Food Systems (i.e. reduce the intake of animal protein and increase plant-based protein (legumes)
- Interrelationships amongst elements of value chain
- Economic performance of research outputs (economic ?ting in research projects)
- Manufacturers and retailers as key actors between producers and consumers
- Food value chains
- Interrelations
- International trends/behavior policy

The responses gave a first indication of how broad a picture stakeholders might give in response to the questions addressed in future focus groups. Several relevant issues were mentioned, some addressing the future process of designing a FS Observatory and others suggesting focus areas for the data and analyses. However, the responses also pointed to the need for preparation of participants in future focus groups and suggests that questions might be more focused. In addition, follow up questions might be necessary to steer the dialogue and benefit fully from the planned focus group interview sessions.

The presentation of Niels Halberg "Focus groups and workshop input to the development of a FS observatory" has been included – see below.

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Focus groups and workshop Input to the development of a FS observatory

INSIGHTS AND EXPERIENCES FROM a SYSTEMS APPROACH

Niels Halberg, DCA, AU, DK

SCAR FOOD SYSTEMS SWG ; 12th September 2024, Brussels

The starting point ....

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Activity Area B 'Launching a Food systems observatory'

- *The current monitoring and reporting of FS activities, outcomes and drivers, are only available in a fragmented way.*
- *Methods for data collection frequently lack scientific underpinning and harmonisation.*
- *Existing databases fail to cover the entire span of value chains, across all member states and are incomplete in their coverage of FS' contributions to societal and environmental goals.*
- *A particular omission is data on the midstream actors in FS, which involve food aggregators, processors, distributors, procurement and food services.*

The Observatory will be a platform, community of practice and data management service for:

- developing new common metrics on the sustainability performance of European FS;
- connecting existing databases
- developing and piloting new forms of data collection on FS from different sources
- developing methods and protocols for combining data on partial aspects into **coherent FS descriptions and assessments** for **informing governance and policy development** at different scales;
- establishing practices for reflexive monitoring and learning including stakeholder engagement on potential transition pathways, leverage points and current progress.

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From the SRIA: 'Launching a Food systems observatory'

Platform for sharing metrics, data and assessments on sustainability performance of food systems

Inspiration from other "observatories"

State and outlook of Europe's environment in 2020: Knowledge for transition to a sustainable Europe

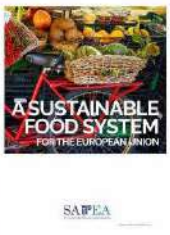
- *"Viewed against Europe's long-term vision and complementary policy targets, it is clear that Europe is not making enough progress in addressing environmental challenges. "*
- Thematic reports addressing internal linkages (DPSIR framework), challenges and trends
  - Scope of the theme (e.g. Biodiversity; Freshwater, Land & soil; Air Pollution; Waste & resources, ..)
  - Policy context
  - Key trends and outlooks: overall, country comparisons, summary assessments
- Overall report combining thematic areas where relevant
- "Sustainability through a system lens"

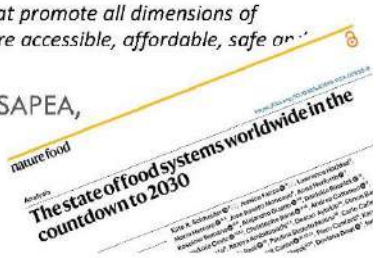
Europe needs to find ways to transform the key societal systems that drive environment and climate pressures and health impacts — rethinking not just technologies and production processes but also consumption patterns and ways of living. This will require immediate and concerted action, engaging diverse policy areas and actors across society in enabling systemic change

The starting point ...

A European Sustainable Food System in 2050 and beyond based on inter-connected, territorialised, sustainable food systems (being fair, safe, healthy, biodiverse, ..)

- What is included in Food systems sustainability?
- FAO/WHO, 2019: *"Sustainable Healthy Diets (SHD) are dietary patterns that promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. ..."*
- Previous projects and reports: EC-HLEG; SUSFANS; EIT Food; SAPEA,
- Collaboration with FutureFoodS WP5; JRC; Food2030
- Global perspectives





This Analysis presents a recently developed food system indicator framework and holistic monitoring architecture to track food system transformation towards global development, health and sustainability goals. Five themes are considered: (1) diets, nutrition and health; (2) environment, natural resources and production; (3) livelihoods, poverty and equity; (4) governance; and (5) resilience. Each theme is divided into three to five indicator domains, and indicators were selected to reflect each domain through a consultative process. In total, 50 indicators were selected, with at least one indicator

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GOAL OF FOCUS GROUPS

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What do representatives of different stakeholder groups believe are key aspects to monitor as input to monitoring Food Systems transition vis-à-vis policy objectives and stakeholder interests?

- *How may data-based evidence **support policy making** for food systems transition?*
- *How do we identify, monitor and assess **leverage points** for Food systems transition?*
- *How may a FS observatory include and inform private sector and civil society in "*reflexive monitoring and learning *" ?*

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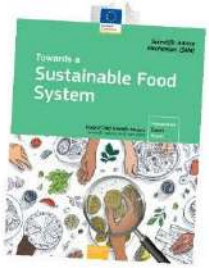
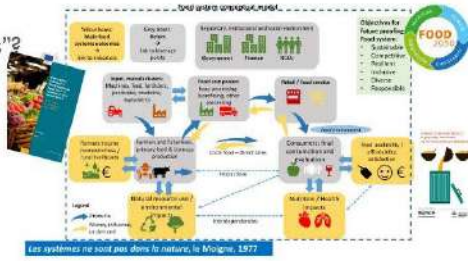
The key questions:

- A food systems observatory to what purpose, and for whom?
- How may different data sources and indicator areas be linked and interpreted from a ***Food systems transformation*** *perspective*?
- What granularity – vis-à-vis level of policy advice and decision making?
- How may other stakeholders use a FS Obs (private sector, civil society, ..) ?
- How do we delineate food systems at different scales?
- Can we use the DPSIR approach to distinguish "driving forces" from "states"
- How to represent "leverage points", Feed-back loops and "lock-ins"?





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Site event

Invitation will be sent soon

Budapest, Hungary

Process and EXPECTED OUTCOMES

foodpaths

Identify and contact stakeholder representatives for 4-6 focus groups, web based, Sept-October.

Identify challenges and options for a food systems approach to observatory (transition, leverage points, ..)

Synthesize responses, points within and across focus groups

Develop concept, draft protocols ver 0.8 for presentation and discussion at workshop and with FutureFoods

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6.3. Annex 3: Test of game approach

Workshop 3 / Food Systems Approaches / WP 2 & 3

First Annual Meeting of FoodPathS. Rome, June 2023.

Session leader(s) / organizer(s):

- Susanne Hansen (Main facilitator)
- Merete Studenitz
- Ivana Trujkla
- Niels Halberg
- Hugo De Vries

Supporting documents:

-list here supporting documents or material used before or during the session-

- Power-point explaining FSA (Not included)
- Groups and roles within them (Appendix 3A)
- Boards (Appendix 3B)
- Questions and game contexts and objectives (Appendix 3C)
- Extra facilitation questions (Appendix 3D)

Session(s) objectives

1. Test a more game like approach as a way to engage stakeholders in the importance of Food Systems approaches and work through problems.
2. Use insights from groups to help guide and facilitate the creation of a FoodPATHS definition of Food Systems approaches (part of WP2 deliverables).
3. Identify some of the key aspects, elements, and issues that FoodPATHS consortium have regarding Food System approaches.

Minutes of the discussions / Main conclusions / Open questions

Facilitator notes

Setup on the day included two rooms, one with four groups in it, and one with only one group. There was some issues regarding time, and an elaborate introduction was skipped, in favour of a short presentation of the agenda for the session, the groups, and an icebreaker.

Engagement with the icebreaker went well.

Session one went well, there was generally good engagement across the groups regarding the questions, and the 10-minute intervals, as well as GMs at various tables kept participants engaged and on message. Few groups struggled with the questions, although the amount of time needed to go through the questions on the board varied among the groups.

Session two, as expected, caused some initial confusion, as people were asked to change from one group to the next. Overall, more time should have been allotted to this session, to allow for more in depths discussions

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to develop, especially around the final question in this session. Finally, there was good engagement with the questions, and the reconfigured groups worked well together.

Group 1

MISSING SCRIBE NOTES

GAME

Challenge: High levels of food waste across all sectors

Framework: Living Labs

1. **Outcomes**

Living lab creation

Empower actors to take action (how though?)

Reduce food waste/loss

Raise awareness

Improving communication among actors

Improving food security

2. **Players**

Food banks

Teachers, people responsible for training activities

Regional policy makers

Farmers & food producers

Retailers

HoReCa

Public Procurers

Civil Society Organisations

Consumers (Including their representatives)

3. **Pieces**

Communication methods for consumers

Customer behaviour

Incentives for consumers

Operational procedures to improve the waste management

Regulation

4. **Rules**

Perishable nature of food

Legislation (level of legislation)

5. **Moves**

Connecting with LLs working on the same topic (join forces, know more, best practice…)

Food waste in educational programmes

New communication campaigns (social media etc.)

Also thanks to better connections between retailers and food banks

Encourage enterprises to establish food waste reduction strategies

Advocacy (policy makers)

Policy makers should introduce incentives (to innovate sector, convince more companies)

6. **Win or Loss**

No notes.

REFLECTION

1. **Main differences and similarities**

Differences: Chose observatory; focussed more on production and increased production; procurement; more broader ??; loorer (??) are producer; It solutions

Similarities: Same actors – communication/awareness campaign; Policies; regulation; public food services; lack of evidence; Barriers: cultural barriers.

2. **Key elements**

Communication

Legislation

Interaction

Resources

3. **Take home message**

Interaction with moving pieces (dynamic)

Group 2

System Approach Workshop – Rome on the 28th of June. Group 2, Scribe: Merete

Participants:

1. Barbara: BA

2. Flavia: F

3. Bernadette: BE

4. Jasmina: J

5. Maria: M

6. Emanuella: E

Susanne comes to the group every now and then

Time	person	Group dynamics	Topic discussions
	J		Jasmina introduces. Choose the framework
	Susanne	Comes to the group	
	J	Asks if we can combine two challenges	
			High level of food waste, inspired by the dinner yesterday. The restaurant asked if we wanted "take home", but they did not bring boxes. Some see it as food waste and overconsumption but not all.
	E		conference: you waste more at home
	J		A cucumber packed in plastic preserves the cucumber, but what about plastic waste?

Time	person	Group dynamics	Topic discussions
	M		at schools, you do not eat all.
	F		level of the market? **Level of eater?**
	decision		Location a city
	Choose framework		
	F		choose lab and food waste
	Discussion		What is a lb
	Susanne		please find the outcomes!
	J		Eaters, Kantine, restaurant, parents
	J		In NL….
	F		outcome: training and education for cantines an interesting outcome
	E		A little boy in a small school. They are allowed to take what and how much they want.
	M		there is an app for…
	BE		there is an app for leftovers
	F		awareness in Cantines. Make people to think about shopping
	J		then we put everything on the individuals.
	F		busy life:
	J		reflection on planning
	E		Asks if foodwaste is increasing
	M		should we put an APP as an outcome
	M		"togotogo" already exist
			Is it output or Moves?
		There was a kind of mess using the rigth colours for the right questions	
	J	Could we just write numbers instead of matching the colours?	
		Jasmina uses the card to find next step for the workshop	
	M		training of consumer it self. Overeating is also foodwaste.
	Susanne	25 mins left	
	J		What is more to be changed?
	B		Measure

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Time	person	Group dynamics	Topic discussions
	M		Nutrition
	J	could you write “nutritional guideline”?	
	B		what is in the fridge?
	F		When do we do the shopping?
	B		Food environment
	Susanna	Individual capability	
	B		Something about overbuying
	Merete		We buy more when we are hungry
	F,E, MI		In the NL more meat than vegetables
	Be		if you have a more social community
	M		A surplus in Milano.
	J		Is the food healthy or a mix?
	F		They take it out as waste three days before expiring day
	B		It is not clean
	F		there is a law to control if the food is safe. Regulation is a help.
	F		if you cook, it is other rules.
	J		food safety has higher priotiry than health? Ex. a bag of chips, the date not important but healthy?
	J		no agency focusing on health.
	F		a block in a city could be a LL.
	E		to avoid surplus.
	BE		provide a freezer to place surplus.
	F		compost system, LL in the road to make experiments.
	E		We share what we grow in the garden with our neighbours
	F		a move….how to manage surplus.
	J	asks Ba how is it for your country	
	Ba	replies	
	E	Was inspired by Ba	In INRAE we tried to give food away, but some could not receive it

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Time	person	Group dynamics	Topic discussions
	E	Talks to Ba again	
	Ba	Replies something about Christmas and fresh food	
	J		It is a move
	B		togoodtogo, less regulation, but it will possibly come
	Ba	Put something on the table	
	J		trade-off between actors?
	F		
	F	Talking to M	restaurants, schools, households
	M		In school, we did not like the food and throw away too much. In the evening they made dinner from leftovers.
	Be		if you grow it yourself you are proud and willing to eat it.
	F		in Montpellier price… this is what they give us for lunch
	F		so it is training the cantines also to adjust to the costemers
	F		we ha´d a book to write, what we want.
	Be		for airplenes click on which option you want.
	E		Why did you not consume? In INRAE they decide what is served, we cannot propose.
	F	oh, this is a rule, : E write !	
	J	let us see if we have covered most of it?	
12:49		guest are coming i**n bold**: some are leaving. New group: **1.** Barbara: BA, **Catrine: C** **2. Flavia: FL** **3.** Bernadette: BE, **Anastasia:A** **4. Jasmina: J** **5.** Maria: M,**Afrodite: AF** **6. Emanuella: E**	
	J	Set the scene	Food waste in cities, overconsumption, lab. All elements are not in a linear way. Food waste in daily life. Awareness raising, also

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Time	person	Group dynamics	Topic discussions
			awareness of how we plan our life. Players: consumers and eaters. Cantines, parents, school, restaurants. Nuttritien guideline, mealplanning. Social quality, but not discussed a lot. Interaction between kantines and eaters. Rules and regulations can stop sharing leftovers. A lot of unhealthy food is shared. Test: eaters and school, safer food in the neighbourhood. In a nutshell?
	J	A couple of questions: 1: what differences to your group?	
	AF		about the same focus: on education. Forming for changing mindset.
	An		Foodlab, French region, different player: consumers, policymakers, the main objective to reduce food waste and to raise earnings. Include food in…. legislation. Recommendations, different approach because it was in the region. We consider that the politician can make the change.
	J		were we aware that we did not include the policymakers?
	FI		yes they were included as facilitators of the LL
	An		also farmers and producers
	C		Food waste because it was the most concrete. The observatory. There are already good practices but we. In Observatory we will identify….. existing, consumers are in focus. We did not talk about waste in the supermarket, but we focused on the house. But it could also be….
	Susanne	Came to the group	
	C		we know the food is not good any more. Encouraging composting. They get a fine if they throw food in the bin.
		Hereafter a lot of talk about regulations	
	E		In my son's school, they also have compost
	C		the benefit of compost is good for vegetarians. Then you see the whole circle.
	FI		they collect all the bread
	Merete	2 mins left	
	J	The take-home message?	

Time	person	Group dynamics	Topic discussions
	FI		is it a system approach?
	C		buying eating throwing away.
	J	The take-home message?	Maybe it was not so much system approach
	F		More a value chain approach
	C		maybe because food has a life. It dies, this makes a chain.
	FL		organic food makes better compost

OUTCOMES:

awareness, consciousness, reflection on planning life – eating healthy

training/education canteen in CV

good practices, canteens, personal

PLAYERS:

Parents

Restaurants

Schools canteens

Cooks places

Eaters

PIECES:

Portions size,

Cultural norms that favour wasting

Training of canteen personal

Nutrition Guidelines and Education

Training eaters to avoid overeating

Meal planning apps

Food waste apps

RULES:

Define rules for safe food to distribute food

Societal dynamics fx 4 day work week

Possibility of more interactions between canteens and consumers instead of a top-down approach (direction of INRAE only communicating with the canteen)

MOVES:

Involving eaters

Canteens meals from leftover ingredients

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Supporting experimenting at the street level on how to manage household waste collectively

Create a community to reduce food waste by distributing it to less economically developed people

Fridges to share surplus meals, just state what it is and when it was made

Meal planning apps

Food waste appss

Include organic production, produce better quality food, more expensive but we loose less waste

WIN OR LOSS:

Food safety

Not only healthy food

REFLECTION

1. Main differences and similarities

2. Key elements

??

3. Take home message

??

Group 3

SCRIBE NOTES

GAME

Challenge: High levels of food waste across all sectors

Framework: Living Labs

Not a special preference for context but decided for FW because more concrete.

Framework was easy to choose.

Participants have questions about the context/background (stakeholders, urban/rural areas)

- *at regional level, since EU level is more difficult given the framework*
- *Maurine introduces what a LL is.*

1. **Outcomes**

Quantitative data of food waste in public food service kitchens in 3 years (30% reduction)

What to do with food wasted? Redistribute to associations

Collection of data and create a prototype in LL based on that (valorisation)

Concrete actions.

Food waste target reduction – 30 % in 3 years within public food service

Living labs (city level)

Prototype for food waste collection

Action plan for concrete actions

2. Players

All actors: Public; who purchases the food (services); politicians and administratives; Private sector à calls for tenders; Innovative solutions, such as apps; researchers; participatory groups (teachers, nurses, doctors, depending on the setting.

Important is the information sharing

Politicians should be informed

Dietary planning (innovative solutions to prevent foodwaste)

Important to include all groups and not prioritise one over the other (take food from elderly)

Use of services, patients at hospitals

Citizens/consumers (schools, hospitals)

Private sector, through tenders and innovative solutions

Public services (purchasers, politics, administratives)

3. Pieces

Menu planning (in the morning, ask students which size (portion size) they would like to receive that day (they can choose depending on their food preferences.) This should be done in advance, not same day. Could be via app

Planning in the kitchen for what to by from retailers etc. Predict how much they will need.

People and habits

Food processing, planning/prediction

Menu planning (portion sizes, purchase…)

4. Rules

Motivations – SD6 to reduce waste by 2030

Taxation on amount of waste

New legislation on reducing waste by 30 %

Taxation on the amount of food waste

5. Moves

Participatory approach

Innovative nudges/Innovative technologies

- Incentives to schools that reduce their waste the most

- platforms with info/results of how other schools are doing

Focus group discussions (nudging)

Awards for best practices

- *Innovative approach à new services à surprise meals*

Gamification

Training for kitchen staff sensibilization campaign

Innovative approaches (new services, surprise mill)

Participatory approaches

Implement circular new food services

Nudging (planning services)

Training

Gamification (awards for best practices, app selecting)

Focus group discussion

Tech innovation (rescue application)

Senribitizatrori ?? Campaigner

6. Win or Loss

Win: Reduce costs; saving resources; Environment and health; Image of companies by showing what they do

Barriers: Companies and other challenging groups (various types of target groups)

Loss: Lack of resources (time to plan the menu, skills to meal plan); Italy case: retailers find it cheaper to simply waste the food than finding solutions; Finland: Reduced waste by reducing prices of Items soon to expire.

Environment/health

Saving raw materials / resources

Various kinds of target groups (patients, kids…)

Lack of resources (time, training, skills, money)

Cultural/habits practices

Reduce costs

Campaigns (financial benefits, image)

REFLECTION

1. Main differences and similarities

Bernadette:

- canteen and household levels

- reusing leftovers

- Education of teachers

- Portion sizes: spoons with specific measures

- creating a community level à more than policy level

Organic & sustainable producers à encourage incentives, push them to do more (This initiative could work in parallel)

Start in schools:

- *Children ambassadors*
- *Waste management*

Collect data of TW at local (observatory) region

Researchers at the centre but also politicians and consumers.

Framework à population habits

2. Key elements

Sustainability

To be informed/communication/knowledge

Health (overeating is a form of food waste)

3. Take home message

Synergy between the different practices (observatory <-> living labs)

Collaboration à need all actors involved

Collective thinking and analyse the possibilities

Group 4

SCRIBE NOTES MISSING

GAME

Challenge: Low production of organic and sustainable foods

Framework: Living Labs (??)

1. Outcomes

Place-based labs

Informed consumers

Skilled producers (upskilling)

Improved logistics for transparent short supply chains

Affordability through fair pricing (farmers + consumers)

2. Players

Farmers that are:

1. Already organic, but wanting to increase
2. Want to transition
3. Don't know they want to (yet)

Producers

Retailers

Consumers

Political decisionmakers

Producers

Media

NGO's/researchers

Education (schools/university)

3. Pieces

Mindsets

Eating and cooking habits

Better visibility and marketing of sustainable food products

Land management (farmer practice health soil)

Taxation and subsidies (?? Food economic incentives)

Education (school curricula)

Technology & digitalisation à app/ QR story

Revive traditional methods

Connectivity

4. Rules

School curricula

EU farm2fork strategy

CAPs (Rules should facilitate exchange with food producers/farmers)

Minimum standard (eg. In public food procurement)

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Link to other policies/regulatories (eg. NBS/biodiversity)

5. Moves

Investment from government

Work with children

Increased media coverage (awareness, Gaming)

Develop the business case

6. Win or Loss

Losses: Inflation; Policy and complexity; Money; unwillingness to change BAU; external pressure

Wins: Political change/environment; Awareness on sustainability à children

REFLECTION

1. Main differences and similarities

- Challenge: Food waste vs. organic

- scales: system vs. concrete example

+ education

+ regulatory framework

+ behavioural change

+ actors

2. Key elements

Regulations à change and adapt locally

Ways of communication and power balances

Involvement: don't leave anyone out

Awareness, training, education

3. Take home message

Global change starts with adapting to local diversity.

Group *5*

GAME

Challenge: Food Waste

Framework: Observatory (??)

1. Outcomes

70 % of food waste is at home. Food waste related to social norms.

It's very important to be clear on expiry vs best before date.

Awareness in all sectors about the impact on the planet and how they can contribute to change things.

Training at staff levels/ campaigns/Schools

Mapping regulations

Open and accessible data

Understanding communications and awareness raising in the region

Training professionals

Find out about solutions on all levels of the Food System (local)

Having a close look at education/training programmes & professionals in the topic

Mapping/understanding traditional diets/ food culture

Mapping regulations and their interconnections

Detecting unusual suspects in the local Food System and identifying mechanisms to fight food waste

Where is the food waste produced? In what part of the supply chain

2. Players

High level government; retailers; consumers; startups; Industries/local industries; Charities/foodbanks

Tech startups and app solutions

Research:

- - the supply chain
- - local government (identify key movers in the local government

Fresh food markets

Supply chain:

- Primary sector
- industry (also local?)
- Retail (also local!)
- Consumer

Charities

Food banks

Civil societies

3. Pieces

Policy and practice; create a safe space, they have to feel they are part of the system.

Active open communication (deep listening)

Feeding results into policies and practice

Creating a safe space for knowledge sharing

Apply methods of research that fit the stakeholders.

4. Rules

National legislation; cultural rules/habits; industrial standards; labelling; inform/Enforce; Different uses of food/revalorisation of food waste; Map nest practice around

Industrial standards/norms; National regulations; cultural/traditional 'rules'; enforcement of rules; regional waste management; Possibility of revalorisation.

5. Moves

Accessibility; Inform/communicate; make clear the benefits for the consumer (ex. NY where you get composte back so you can use it); Scale up unusual mechanisms; empower citizens.

Formalise 'unusual' mechanisms and scaling them up/empowering them

Accessible and understandable systems for avoiding food waste

Magnifying best practices

Consumer/stakeholder incentives à why would people use a solution

Fostering consciousness in the community instead of pulling focus on governments à bottom up movement

6. Win or Loss

Barriers: Culture; flow of information between research and industries

Facilitators: policy makers engaged.

Cultural barriers and rules; labelling 'best before' à food safety laws; too narrow information flows between science and practitioners; powerful go to/also hindering person in local government; data sharing /privacy policies of companies à some stakeholders might not reveal food waste.

Page 3:

Living lab barriers:

Living labs more about getting actors together, less about observing.

Develop concrete actions rather than observing

Higher education rather than researchers

Barriers depend more on solution proposed by the living lab:

- *Time*
- *Lack of resources*
- *People who are working in kitchens*
- *Correction and coordination efforts to not reinvent the wheels, but share good practice.*

REFLECTION

1. Main differences and similarities

??

2. Key elements

??

3. Take home message

??

Main conclusions

The Games Approach

Overall thinking of the Food Systems approach in game terms worked well to engage participants. The high levels of engagement ensured that a broad range of opinions and knowledge was discussed and exchanged within the various groups.

The setup was less like a game, and more in the vein of a standard focus group approach, and time constraints meant that there was relatively little time for groups to discuss the various aspects of the game theory approach, furthermore time should have been devoted to the reflection exercise, to ensure that participants had sufficient time to work on the key elements and the take home message.

Finally, more time should have been devoted to synergies, feedback, tradeoffs etc. as this is one of the key differences between a Food Systems versus a value chain approach to Food Systems analysis.

Key Aspects, Elements, and Issues

When it comes to the main findings it should be noted that four out of five groups choose to tackle food waste as their challenge to work through, with one group focusing on the low levels of organic production. However, different groups tended to focus on different actors, and only consumers were identified as key players among all five groups (fig. 6). Some of these differences could potentially be ascribed to differences in frameworks, however of the five groups, all but one choose living labs (groups five choose an observatory to solve their food waste issues).

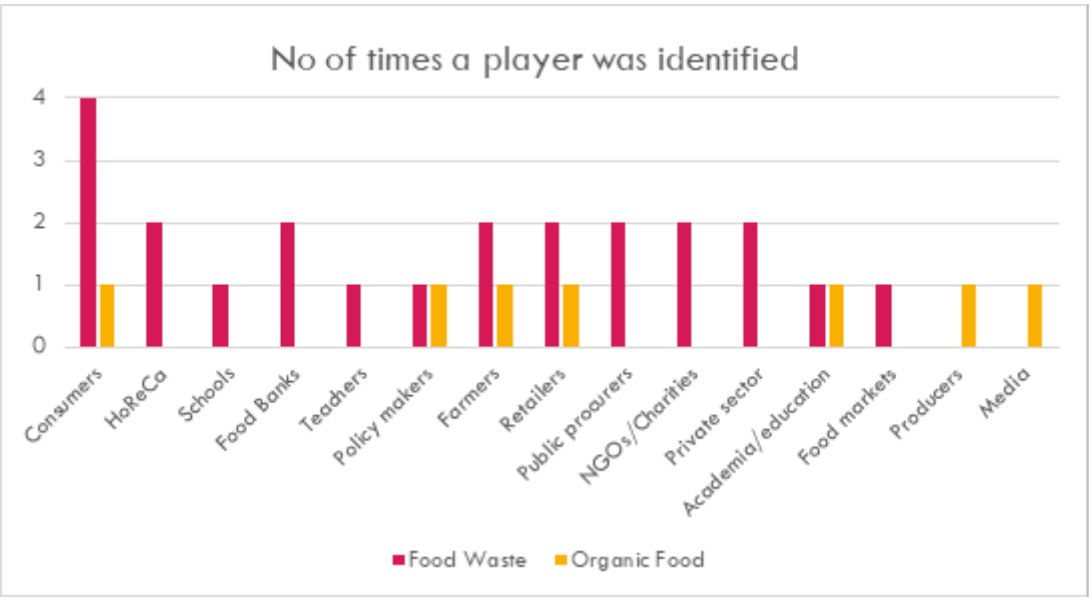

Figure 6. Number of times a player was identified as key to solving and divided into the two challenges chosen.

This highlights that the inclusion of stakeholders, has the potential of becoming problematic, as the inclusion of 'all relevant stakeholders' very much depends on who and how an issue is viewed by those responsible for projects within a future partnership. In short, the inclusion of stakeholders should be done in a transparent manner, to ensure legitimacy and avoid power asymmetries.

Pieces and Moves are unsurprisingly closely related to the Outcomes identified by the groups, which highlights the importance of vision and missions in guiding the interventions.

Because of the time pressures, most groups focused on barriers and facilitators when speaking of potential wins and losses. The environment was primarily identified as a win, while the lack of resources was seen as a potential loss within the various scenarios. Three main barriers, in the form of power asymmetries, cultural practices and diverse stakeholders were identified as potential recurring barriers to change.

Key elements of the Food Systems approach according to the groups was communication, meaning the open communication between stakeholders, and bringing in policy and legislation. Other elements were involvement, awareness, resources, education and knowledge, interaction, and power.

Decisions and next steps

- Based on the findings from the workshop, a more game-like approach should be developed, taking into account the need for pre-established rules, moves and context.
  - Should use Food Systems as a catalyst for this, where the game setup is a bit more rigid, to test a true game, with the potential to expand the thinking into more issues.
- Incorporating findings from the workshop into the ongoing work with the FSA definition to be used in the prototype partnership.

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Appendix 3A: Explanation of Roles

Game Masters

- As the gamemaster you are responsible for facilitating group discussions.
- First the group should select a challenge and a framework.
- Then please take them through the different questions on the board before you. If at any point the conversation stops, please use the provided cards to ask more questions of the group.
  - Each colour on the board corresponds to a question card.
- During the reflection exercise at the end, please help facilitate group discussions of the three questions
- WE WILL KEEP TIME FOR YOU

Scribes

- Take note of the chosen framework and challenge
- What are the key elements/methods to solve the problem according to your group?
- To take notes during conversations.
  - Main points that came up during the sessions
  - Main questions that came up during sessions
  - Main takeaways from sessions
- To observe group dynamics:
  - Do they struggle with exercises
  - Is someone more vocal than the others
- During exchange: Summarize the challenge tackled and the methods used to solve it to the new participants.

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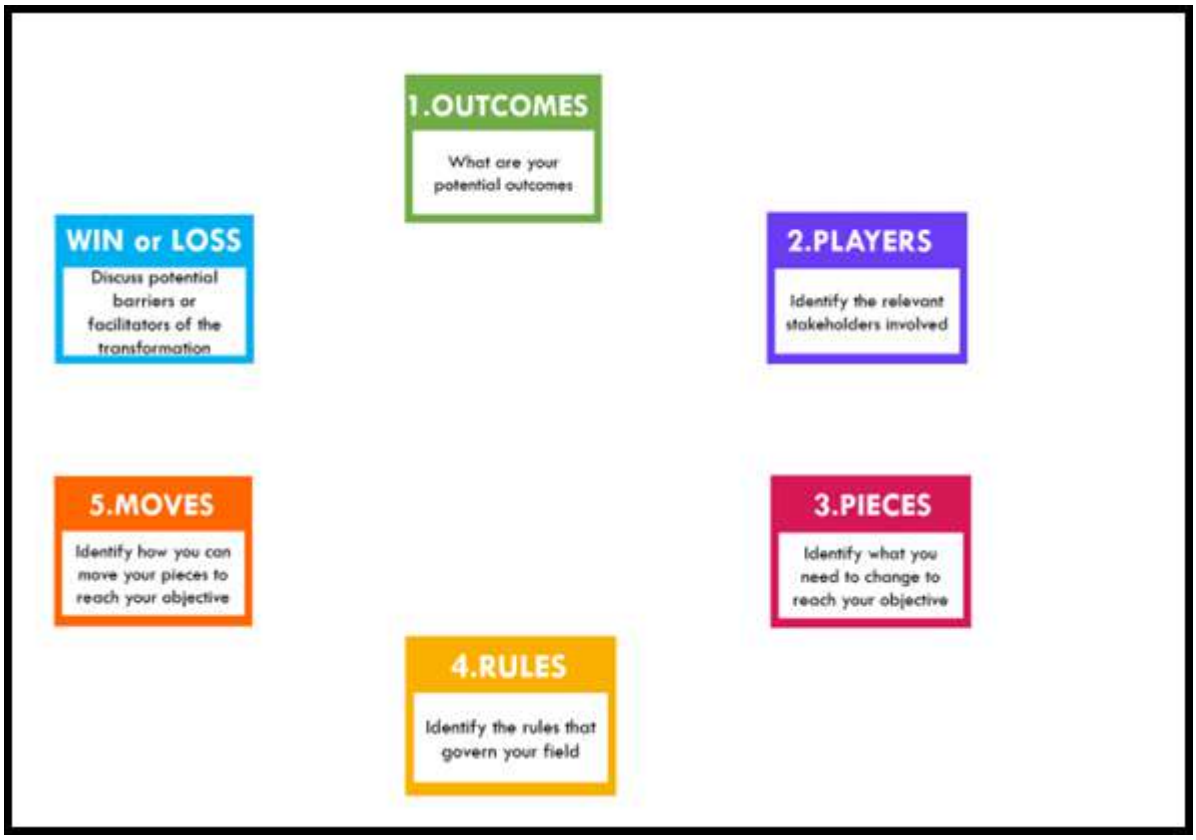
Appendix 3B: the Board



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Appendix 3C: Questions and game contexts and objectives

Context

Your local region suffers from several challenges with their Food System.

The main issues are these:

- Large numbers of obesity and malnutrition.
- Low production of organic and sustainable foods.
- High levels of food waste across all sectors.
- Low engagement with food and sustainability at governance level.

Frameworks

As part of the game, you should choose **ONE** of the following frameworks to help you with you discussion.

Observatory

An observatory to collect and synthesize information on the performance of the Food System(s) in your local region.

The observatory should focus on Food Systems, rather than just focusing on for ex. a food consumer observatories.

Living Labs

One or more Living labs to be developed in your region to test solutions to one of your challenges.

The living lab should consist of all relevant stakeholders (reflecting different background and agendas), addressing challenges and solutions in your region (Ex. changing the food in schools to be local and healthy).

A research funding program

Think through how you may develop a funding program to fund various research and innovation projects to solve one of your challenges.

Such as ERA-NETs SUFOOD2, CORE Organic, FutureFoodS Partnership on Sustainable Food Systems, Agroecology Partnership, etc.

Objectives

In your groups, please go through the following objectives.

1. Choose the challenge that you will be tackling.

Which challenge did you choose? _____

2. As part of this challenge, choose **either**: an observatory/Living Lab or A public funded call mechanism as framework for discussion.

What framework have you chosen? _____

3. Establish a cross-sector collaboration involving stakeholders, to establish your framework and solve your challenge.

The questions on the board will help guide you through the rest.

Reflection session

The reflection session started off with a change in groups:

- 2-4 members of each group will be moved to new groups (these will be assigned by Facilitator during the game)
- Gamemaster, scribe and at least 1 member of the group stay at the original table.
- The Scribe, with input from OG member and GM will Summarize the challenge tackled and the methods used to solve it to the new participants. (max 5 minutes)

- The members will now discuss each of the three following questions (5-6 minutes for each).

Reflect and Exchange

In your new groups, please let the scribe take you through the main points of the discussion as well as the board before you.

Once this is done, please discuss:

1. **What are the main differences and similarities between this approach and the one in your original group?**

2. **Looking at the similarities, what are the key elements in the Food Systems approach?**

3. **If you could name only one take home message regarding the Food Systems approach, what would it be?**

Appendix 3D: Extra Facilitation Questions

2.PLAYERS
10 min discussion

- Who needs to be involved to transform your food system?
- What would their motivations be?
  - To join in the transformation
  - Not to join in
- What power do they have to change the system?
  - Formal (ex. economic/political)
  - Informal (ex. engagement of citizens)

3.PIECES
10 min discussion

- What is it specifically you need to change in order to reach your objectives?
  - Is it diets, processing, waste management, regulation?

4.RULES
10 min discussion

- Is there legislation or policy you need to be aware of or change when it comes to transformation?
  - What could they be?
- Are there any incentives you could use to motivate or engage stakeholders with?
- Any boundary conditions you need to identify?
- Any stakeholders not identified?

5.MOVES
10 min discussion

- How would you engage your stakeholders?
- Is it necessary to build or create something new (training, awards, labelling etc.)?
  - What would that be?

1.OUTCOMES
10 min discussion

- What are some of the outcomes you need to transform to solve your challenge?
  - Is it new policy? If yes which?
  - Is it new Living Labs?
  - Is it a new R&I focus
  - New networks?
  - New praxis?
  - Education?

6.WIN or LOSS
10 min discussion

- Who is the winner if you are successful?
- Are there any potential losers?
  - Trade-offs between players
- Can you identify any potential leverage points?
- Can you identify any potential lock-ins?
- What synergies can you identify?
  - Where changes benefit multiple players

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