Milestone 1.3: Data needs catalogue

CNR IRET, Italy

July 2021

Funding:

The author(s)/editor(s) acknowledge the financial support for this project provided by transnational funding bodies, partners of the H2020 ERA-NETs SUSFOOD2 and CORE Organic Cofund, under the Joint SUSFOOD2/CORE Organic Call 2019.

National funding bodies:

German Federal Ministry of Food and Agriculture, Federal Office for Agriculture and Food, (DE)
Ministry of Agricultural, Food and Forestry Policies, (IT)
Finnish Ministry of Agriculture and Forestry, (FI)
National Centre for Research and Development, (PL)
Department of Agriculture and Fisheries, (BE)
Executive Agency for Higher Education, Research, Development and Innovation Funding, (RO)
Department for Environment, Food and Rural Affairs (UK)

Project Consortium:

Philipps Universität Marburg (DE)
The Royal Agricultural University, (UK)
Institute of Research on Terrestrial Ecosystems, (IT)
Institute of Soil Science and Plant Cultivation - State Research Institute, (PL)
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, (RO)
European Forest Institute, (FI)
The Progressive Farming Trust Organic Research Centre, (UK)
Flanders Research Institute for Agriculture, Fisheries and Food, (BE)
University of Reading (UK)

FOODLEVERS factsheet	
Project start date	December 2020
Project duration	36 months
Project website	http://www.FOODLEVERS.org
Milestone number	1.3
Milestone title	Data needs catalogue
Due date deliverable	30.06.2021
Actual submission date	01. 09.2021
Editors	
Authors	Andrea Pisanelli, CNR IRET
Reviewers	Project Consortium
Participating beneficiaries	All
Work Package No.	1
Work Package title	System Definition
Work Package leader	CNR IRET, Italy
Work Package participants	All
Estimated person-months per deliverable	N/A
Draft/Final	Final
No of pages (including cover)	16

Document History (Revisions – Amendments)	
Version and date	**Changes**
19.02.2021	First draft
14.07.2021	Finalised draft
29.07.2021	Amendments ILVO
02.08.2021	Amendments UMR
06.08.2021	Second draft
01.09.2021	Final

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1. Objectives

This document aims to develop a schematic framework of the data necessary to be collected to implement WP1, WP2 and WP3. In particular, task 1.3 will support different tasks (table 1) by coordinating both quantitative and qualitative data collection. These tasks include meetings and surveys with FS case studies value chain stakeholders to collect either qualitative data (e.g. knowledge, opinions, perceptions, behaviour, etc. collected in interviews, focus groups, etc. with farmers, consumers, and other actors.) and/or quantitative data (e.g. questionnaires to collect farm input records, consumer information).

WP	Task	Project output	Data type	Timeline
1	1.2	Reference Systems (RS)	Quantitative	M1-12
2	2.1	Ecosystem Service Assessment (ESS)	Quantitative	M1-34
2	2.2	Life Cycle Assessment (LCA)	Qualitative & Quantitative	M13-34
2	2.2	Emergy Assessment (EME)	Quantitative	M13-34
2	2.3	Socio-economic value chain assessment (VCA)	Qualitative	M6-32
2	2.4	Consumer behaviour analysis (CBA)	Qualitative	M13-30
3	3.1	Stakeholder decision making model (SDM)	Qualitative	M12-30
3	3.2	Agent-based Modelling (ABM)	Qualitative & Quantitative	M9-36
3	3.3	Qualitative Scenario Modelling (QSM)	Qualitative & Quantitative	M24-36

Table 1: project tasks that require quantitative and qualitative data collection.

Quantitative data will be collected submitting questionnaires to farmers and relevant stakeholders (customers and consumers) of the FS case studies and the relative value chains. Each task leader will provide a detailed methodology to be used and the data that need to be collected. In general, depending on the specific objectives of the task, quantitative data will investigate:

- ✔ characteristics of the farms
- ✔ farm inputs and outputs
- ✔ environmental conditions where the farms are located
- ✔ customer and consumer preference analysis

Qualitative data will be collected adopting participative surveys like working groups, workshops, focus groups, interviews, etc. addressed to a network of stakeholders. Each task leader will provide guidelines defining the methodology to be used. In general, depending on the specific objectives of the task, various qualitative data will investigate such as:

- ✔ Type of stakeholders (farmers, consumers, policy makers, etc.)
- ✔ Stakeholders characterization (gender, age, education level, employment, etc.)

- ✔ Stakeholder perceptions about organic products and food systems
- ✔ Stakeholders knowledge and needs
- ✔ Characterization of the value chain of organic and sustainable food production (including innovation and challenges)

2. Data need overview

The following sections highlight the type of data requested by the different tasks. Task 1.2 represents the mainstream of organic food sectors in different countries/regions and the task's outputs will serve as basis to compare the innovative FS case studies of the project with their respective mainstream counterpart. Task 2.1 and 2.2 assess the environmental, social and economic sustainability of the FS case studies. Since these tasks are integrated among them, data collection should be organized adopting a common framework. Task 2.3 describes the local value chains linked to the different FS case studies and it is expected to find added significance in terms of knowledge production and ecosystem service provision, to explore complexities of production networks and innovation activities, the relationships of actors in the chains as well as the embeddedness of the value chains. Task 2.4 examines the behaviour of consumers in each FS case studies. The drivers affecting the consumer intentions to purchase organic products should be identified in order to discovery barriers and levers for promoting consumer health and environmental sustainability and promote actions to induce behavioural changes and stimulate organic food consumption. Task 3.1 is based on knowledge and experience of local stakeholders linked to the FS case studies. These personal backgrounds will be used to create cognitive maps in which factors influencing the value chains and the relative connections are represented. Moreover, the data produced in the aforementioned tasks will be used in the development of Task 3.2 and 3.3. In Task 3.2. an agent-based model environment will be built which will include data across different levels of socioeconomics, value chain, sustainability and environment. In Task 3.3 part of the results of the previous tasks in WP2 and WP3 will be used as a sort of input data for the expert workshops.

The relationships among the tasks among them and with other tasks of the project are highlighted in the following figure 1.

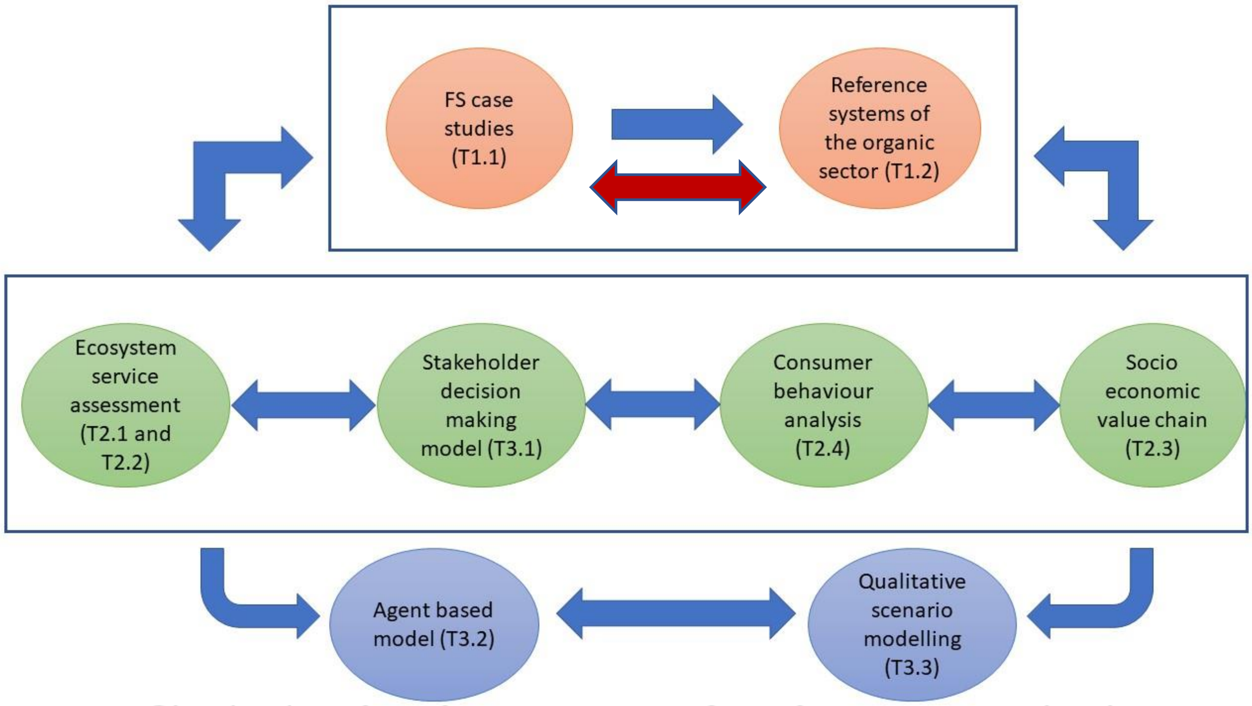

Figure 1: relations and links among the tasks within WP1, WP2 and WP3.

I. Task 1.2: definition of reference systems

To put the specific characteristics of the innovative organic/sustainable case studies into context of further activities in WP2 and 3, we will assess reference systems from the mainstream organic / sustainable sector in this task. This task will be based on literature review (scientific papers, technical reports etc. and data review) and expert opinions.

This comparative dataset could be obtained through an analysis of FADN and/or country-specific benchmarking data to construct typical farm structures, practices and supply chains. All partners will be asked to provide relevant national information using available data and proper online survey forms in compliance with a work plan within WP1.

II. Task 2.1: ecosystem service assessment

This task aims to evaluate the ESS provided by agricultural value chains in different farming systems across a range of areas using the PG Tool. The PG tool (Gerrard et al., 2011) is a sustainability assessment tool which analyses farm performance, using environmental, economic and social indicators. The tool facilitates a dialogue between the assessor and the farmer and can be used to identify areas for improvement, possible solutions and monitor changes over time.

Identified indicators will be then used to collect data in the partner case studies. EFI, RAU and ORC will assist case study partners in analysing the data.

The use of the PG Tool needs to collect data within different sustainability themes. These themes are then organized in “spurs” such as soil management, agri-environmental management, landscape and heritage, water management, fertilizer management and nutrients, energy and carbon, food security, agricultural systems diversity, social capital, farm business resilience, and animal health and welfare management. Within this general framework, the task will identify specific indicators suitable to evaluate the sustainability of the network of food systems included in the project. This preliminary activity requires a deep literature review to search suitable ecosystem service indicators associated with the identified organic production systems. Once the

indicators are identified, they will be validated through dedicate Delphi workshops to be organized in each FS case study country. The PG Tool adapted to the FS case studies will be used on farm with an advisor gathering data through an interview with the farmer. It has been constructed as an excel workbook with a worksheet for each spur. In addition, there is an initial data sheet collecting general farm information used in multiple spurs and a final results sheet which provides graphical representations of the farm's assessment as soon as the interview is completed.
Each spur is assessed by asking questions based on a number of key "activities". Each activity has at least one corresponding question, mostly about farm management practices, and these allow the advisor to evaluate the detailed ways in which the farm provides each public good. The choice of activities was influenced by a desire for the data collected to be of a type that a farmer would have in their farm records already, i.e. not requiring any further surveys to be carried out. The PG Tool assessment should take two to four hours to complete depending on the dimension of the farm and the need to identify specific indicators

Spurs	**Data need (selection of indicators)**
Soil Management	soil organic matter, nutrients, soil erosion risk
Agri-environmental management	rare species presence, wildlife habitat, herbicide and pesticide use
Landscape and Heritage	historic features, landscape feature management, management of boundaries
Water Management	water harvesting and use, irrigation, flood and runoff prevention, water efficiency and quality
Fertilizer Management and Nutrients	NPK (nitrogen, phosphorus, potassium) budget, fertilizer management
Energy and Carbon	farm's own fuel and electricity use, energy and carbon benchmarks, farm's energy use
Food Security	food quality and availability of food in the local area, off-farm feed, food quality awards, food quality certification and production of fresh produce
Agricultural Systems Diversity	crop varieties, tree and animal species
Social Capital	employment, skills and knowledge, community engagement, corporate social responsibility initiatives and accreditations, public access, human health issues
Farm Business Resilience	farm Business Resilience
Animal Health and Welfare Management	health plan, animal health, ability to perform natural behaviours, housing and biosecurity.

Table 2: example of farm data that should be collected in each spur

Each question is marked with score between 1 and 5 where 1 is the lowest mark, indicating that no benefit is being provided and 5 is the highest score. Some questions have a not applicable (n/a) option.

The scores for each spur are obtained by averaging the scores for all its activities. These are then shown on a radar diagram allowing farmers to see in which areas they perform well and which areas could be improved (figure 2). A bar chart showing the activities on each spur gives more detailed information so that if the farmer sees from the radar diagram that they scored less well on a particular area they can then identify the specific activities to work on to improve the score in the future.

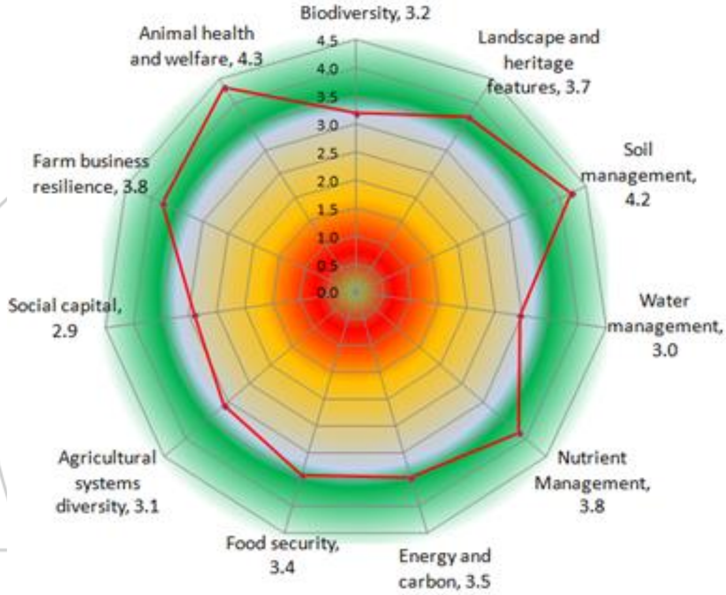

Figure 2: example of diagram representing farm performance within each spur

III. Task 2.2: Life Cycle and Emergy Assessment

This task analyses the environmental sustainability of the case studies by an integrated holistic life cycle (LCA) and emergy assessment (EME) in comparison to mainstream organic systems.

The LCA compares different environmental parameters (e.g. greenhouse gas emissions, abiotic resource use and land-use) using latest methods (e.g. updated methodologies for GHG accounting, Cain et al., 2019) and incorporating novel indicators for human nutrition, biodiversity and social wellbeing. Indicators will be selected through a structured literature review and through a Delphi process (Mullender et al. 2020).

EME is used to analyze energy efficiency and sustainability of complex systems by expressing and accounting for different forms of energy on a common physical basis (Brown & Ulgiati 1999; Odum 1996). After accounting for each system EME indices will assess the share of economic and environmental inputs to determine the sustainability of FS under diverse socioeconomic contexts. All partners are involved in this task by contributing to LCA and EME data collection from each of the case studies identified in WP1.

Both activities require the collection of farm data related to farm structure and organization, inputs used and output produced, and environmental conditions. These data will be integrated collecting data beyond farm gate consulting various actors (such as customers and consumers) of the food value chain. LCA should be implemented first, since EME uses the same data. Thus, it will be important that partner responsible to implement LCA and EME will cooperate in order to optimize the relative efforts. The deliverable 1.3 will detail the timeline to implement LCA and EME

Designing LCA, the following aspects should be considered:

Defining LCA boundaries and scope	Where do we want to draw the line? What attributes are we interested in comparing against one another? How far down the chain do we want to identify and quantify these material flows, and is that data even available?
Data availability	Are data available to quantify material inputs and outputs at all stages of our defined scope? Are these data from a reliable source (e.g. farmer, consumers, etc…)?
Quantifying environmental impacts	How can these material flows be quantified into environmental impacts (e.g., carbon emission)?
Weighting impacts across stakeholders	Which stakeholder categories are most concerned about the value chain (e.g. energy use)?

Table 3: questions and challenges to be considered in designing LCA of FS value chains

Based on these general assumptions, partner leader will define the data set to be acquired and the methodology that should be adopted.

Emergy is the sum total of energy used in the creation of a certain service or product. Emergy analysis is a valuation tool, which takes into account the inputs from the nature and the economy on an equal footing using emergy as a common basis of measure. Production requires inputs of different types like sunlight, fuel, machinery, human labour and economic services, etc. and all the inputs can be converted into a common unit of solar emjoules or solar equivalent joules (Ghaley and Porter, 2013). Data set list is reported in table 4.

Parameter	Data need
1. Solar energy	Area cultivated = m^2 Insolation = J/m2/yr (DMI, 2011) Albedo = 0 – 1 (Haden, 2003) Solar energy = (land area) (insolation) (1-albedo) (Brandt-Williams, 2002)=J/yr
2. Wind energy	Density of wind = kg/m3 (Coppola et al.,2009) Drag coefficient = unitless Wind velocity = (DMI, 2011) Wind energy = (land area) (density of wind) (drag coefficient) (wind velocity)3 ×(time) (Odumet al., 2000a)= J/yr
3. Rain, evapotranspiration	Precipitation average = m^3/yr (record from weather station at the experimental site) Run-off coefficient = 0 – 1 (Hansen and Nielsen, 1995) Gibbs free energy = J/g Conversion = g/m3 Rain energy = (land area) (precipitation average) (run-off coefficient) (Gibbs free energy) (Brandt-Williams, 2002) =J/yr

4. Loss of topsoil in CFE	Crop component = ha Tree component = ha Erosion rate in crop field = g/ha/yr (Hansen and Nielsen, 1995) % Organic matter in soil = (Sibbesen, 1995; Schjønning 1995) Energy content/g organic = kcal/g Energy content = J/kcal Energy of top soil loss in crop component = (farmed area) (erosion rate)(% organic in soil)(Energy content/g organic)(Energy content) =J/yr
5. Diesel	Quantity = (record from trial site) Energy content = J/g Energy = (area cultivated) (quantity) (energy content) =J/yr
6. Machinery	Quantity = g/ha/yr (record from trial site) Total cost = (area cultivated)×(quantity)
7. Biomass belt planting material	Wood equivalent energy/ha = J (Franzese et al., 2009)
8. Seeds	Quantity = g/ha/yr (record from trial site) Total use = (area cultivated)×(quantity) =g/yr
9. Manure	Quantity = g/ha/yr (record from trial site) Total use = (area cultivated)×(quantity)
10. Labour	Cost = euro/ha/yr (cost of labour from land preparation to harvest) Total use = (area cultivated)×(cost)
11. Services	Cost = euro/ha/yr (cost of inputs) Total cost = (area cultivated)×(cost)
12. Outputs	Total production = g/yr Energy content = J/g Energy=(total production)*(energy content)= J/yr Partner leader will define the methodology to be adopted for data collection

Table 4: data set to be collected and elaborated to assess emergy of FSs

IV. Task 2.3: socio-economic value chain assessment

This task analyses the different value chain linkages of the identified case studies and their FS and will examine:

1. added value activities (incl. knowledge production and ecosystem service provision);
2. complexities of production networks and innovation activities (network analysis);
3. relationship of actors in the chain (incl. decision making strategies and governance);
4. embeddedness to identify specific regional mechanisms.

Data will be collected in semi-structured qualitative interviews to farmers and stakeholders around the farm adopting a common protocol that will be developed by the lead partner.

All partners are asked to recruit suitable stakeholders linked to their case studies (main production farm(s), suppliers, processors, distribution partners, retailers, umbrella organisations, local

governments etc.), organise appointments for data collection and undertake and record the qualitative interviews. The subsequent analysis will be undertaken by UMR.
In addition, cost-benefit ratios will be determined incorporating qualitative data on social benefits experienced by people involved in the respective production systems as well as PG tool data related to investments (within a Natural Capital Accounting approach). Using this approach Net Social Return On Investment (SROI) will be defined for each FS to highlight better/worse social, environmental and economic performance within innovative farming systems. The SROI is a way to measure change relevant to the people or organizations that experience or contribute to it by using monetary values to represent the social, environmental and economic outcomes of an initiative (Nicholls et al. 2012).
The interview questions are linked to the analytical dimensions of the frameworks of Global Production Networks (Henderson et al. 2002) and Global Value Chains (Gereffi et al. 2005) (including value, embeddedness, power/governance). The interview protocol also takes the conceptual background of FOODLEVERS into account by integrating questions that might uncover the three realms of "deep" leverage for sustainability transitions (Abson et al. 2017) along the case studies' value chains. The third concept covered is that one of the Social Return on Investment (Nicholls et al. 2012).
For the latter we apply the stated preference method (Fujwara and Campbell 2011) whereby the interviewees are directly asked to assign values to the individually experienced impacts of the respective food system they are involved in. This is done via the concept of "willingness to pay" for an outcome to happen or to avoid. Choosing this open-ended format is the "most direct approach" (Fujiwara and Campbell 2011) allowing to retrieve more honest and meaningful answers of the social benefits as the interviewees answer spontaneously instead of solely reacting to predefined indicators that might not even be perceived relevant. Additionally, it better aligns with the qualitative method as well as the theoretical framework of this task which is to uncover the analytical aspects of value creation, enhancement and capture of the respective food system.
Further indicators needed for the SROI calculation relating to the investment side (e.g. the initial investment) will be identified through a literature review and are to be included to the PG-tool (linkage to Milestone 2.1: PG-Tool adapted).
The following thematic categories of data are to be collected within the semi-structured interviews:

- Emergence and evolution of production system
- Key farm characteristics
- Value chain stages and linkages with other stakeholders: agricultural production, inputs and supply, processing and packaging, distribution channels, marketing and sale
- Differentiation from conventional production systems
- Benefits and perceived social impact
- Financial situation
- Drivers and challenges (including embeddedness)
- Future needs

Data needs provided by PG-Tool:

- Investment-indicators for the calculation of SROI (indicators still need to be defined through literature review and integrated into the PG-Tool)

V. Task 2.4: Consumer behaviour analysis

This task aims to understand consumers' decision-making process in purchasing food in either innovative organic /agroforestry food systems or conventional systems / mainstream organic systems.

Consumer behaviours, attitudes and diets will be investigated to understand what information about food production and processing are relevant for them (decision-making processes). This in turn to identify actions and communication strategies towards consumers to induce their behavioural change.

This task will use a participative sequential mixed method approach, combining qualitative and quantitative research. Questionnaires will be submitted to consumers of both organic and conventional products focusing on street markets, supermarkets and other shops.

The underlying drivers of behaviour will be assessed based on the Theory of Planned Behaviour (TPB) methodology. TPB allows to predict intentions/behaviour with respect to the purchase of a single product, choice between different brands/types of the same product, or choice among very different products, based on attitudes, subjective norms and perceived behavioural control.

In TPB, behavioural intentions are a proxy for real behaviour, which are determined by the combination of a person's attitudes, subjective norms and perceived behavioural control (Hadadgar et al. 2016), as shown in figure 3:

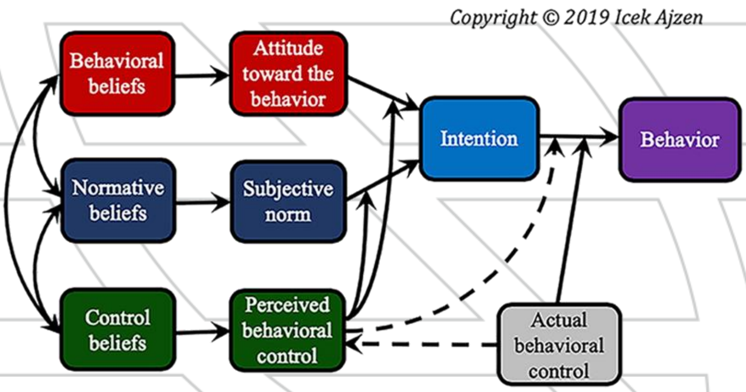

Figure 3: factors affecting individual behaviour change

Behavioural intentions are determined by a combination of different factors:

Attitude toward behaviour: defined the individual's personal adoption of a specific behaviour (based on what each individual beliefs)

Subjective norms: refer to social pressures that make an individual to perform a particular behaviour (based on the social influences)

Perceived behavioural control: refer to situations where individuals do not have a complete control over their behaviour (based on constraints that can influence the behaviour)

The TPB will target the case study FSs' customers and a representative sample of the population to identify differences in barriers and levers. The information obtained can be used to design effective behaviour change interventions.

The lead partner designs the methodology to organize survey protocols.

VI. Task 3.1 Stakeholder decision making model

This task will map actors' knowledge and perceptions in a Fuzzy Cognitive Map (FCM). FCM develops a behavioural model of the system exploiting the experience and knowledge of stakeholders. FCM will be used as a decision-making tool to help individuals and communities to understand the impacts associated with environmental, social and economic changes and to develop adequate policy actions and mitigation/adaptation strategies.

FCM is an efficient inference engine for modelling complex causal relationships. FCM is a modelling method based on knowledge and experience for describing particular domains using concepts (variables, states, inputs, outputs) and the relationships between them. In a graphical form, the FCMs are typically signed fuzzy weighted graphs, usually involving feedbacks, consisting of nodes and directed links connecting them. The nodes represent descriptive behavioural concepts of the system and the links represent cause-effect relations between the concepts (Papageorgiou, 2006, 2013).

The FCM analysis will focus on three goals:

1. define the important components relevant to a community;
2. define the strength of relationships between these components;
3. run "what if" scenarios to determine how components might react under a given scenario (range of possible conditions).

Surveys through focus groups will be performed to obtain: individual, combined and global cognitive maps. The lead partner will prepare guidelines and instructions on how to implement the surveys within the FCM framework. A specific meeting with the stakeholders will be organized in each participating country in order to collect the data (individual, for each category of stakeholders and global cognitive maps as reported in figure 4).

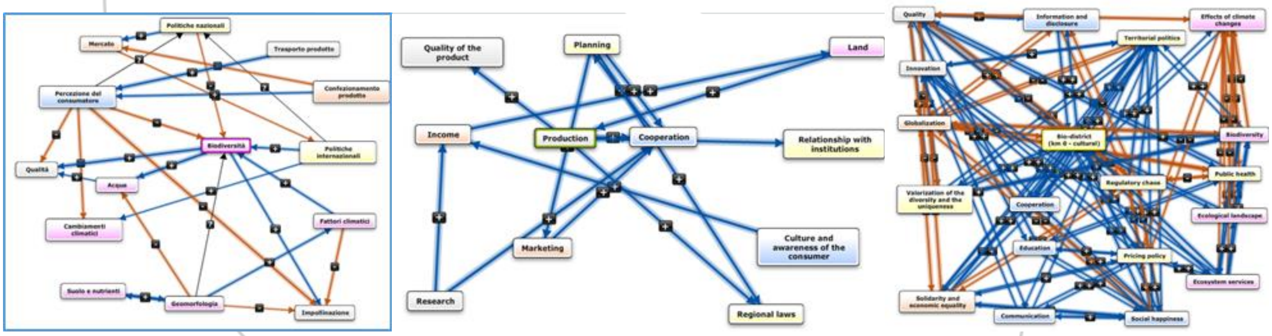

Figure 4: example of individual, category and global cognitive maps

The lead partner will collect the data and will process the analysis. The Mental Modeler Software will be utilized to analyze the effects of variable categories on likelihood scenarios. FCM will be implemented in each FS case study adopting a common methodology provided by CNR.

VII. Task 3.2. Agent-based Modelling (ABM)

The main aim of this task is to provide a holistic view of the complex agri-food system and its interactions between socio-economic, ecological and behavioural aspects within different actors. To provide such analyses, Agent-Based Modelling (ABM) will be the main used method. ABM is a computational tool that has been widely used for modelling and simulating different scenarios within agriculture such as the implementation of a specific sustainable agricultural practice (e.g. organic farming), the decision-making of both farmers and consumers, and the effect of policy measures on agriculture. These models simulate the decision-making process of individual agents

(e.g. farmers, consumers) in response to different scenarios and have a high capacity for the involvement of numerous stakeholders.
To parametrize these agents in the model, several quantitative and qualitative data have to be collected from interviews, participatory sessions and workshops, including data from all the previous tasks. To validate the used data and to gain expert views, this task requires all partners to be involved in the ABM development. A combination of agent-based modelling with design-oriented approaches integrates information that could potentially provide leverage points for sustainability transitions (Gaitán-Cremaschi et al., 2019).
Moreover, how the previous tasks could provide data will depend on the structure of the ABM. As the ABM is supposed to be at a system-level, we propose the following generic structure, accordingly data:

- **Farms and Farmers**: The data about farms and farmers can be coming from the results of Task 2.1, 2.2, 2,3 and 3.1. More precisely, the PGT can provide detailed multi-criteria knowledge at a farm level. LCA and EME could highlight the sustainability and environmental aspects of the farms and their value chains. VCA could give a qualitative understanding of the actors' behaviours including farmers with respect to their value chain and innovation. Last but not least, FCM provides decision-making scenarios of various stakeholders including farmers.
- **Consumers**: The data about the consumers can come from Task 2.3 and 2.4. In this respect, VCA provides knowledge on the stakeholders' behaviours within their value chain including consumers associated with the case studies. TPB's main outcome is around the identification of consumers' motivations, behaviours, principles, beliefs and rules toward sustainable organic consumption. The identified rules and principles of consumers can be used directly as an input into the agent-based model simulating a heterogeneous group of consumers.
- **Other actors**: Regarding other actors, mainly Task 1.2, 2.3, 3.1 can provide information for the ABM. In this regard, RS provides general data and knowledge on how is the current configuration of the current system is and what are the main actors in addition to farmers and consumers. These actors could be of different kinds including retailers and policymakers. VCA and FCM include other actors too while highlighting their decision-making models and behaviours, which could be used in the ABM.
- **Macro-level data:** To understand the model baseline, macro level data should be collected. In this regard, Task 1.2 guides and supports the collection of different datasets related to the different countries involved in FOODLEVERS project. Those national-level data can be used to show the current trends (baseline) in the organic sector.

VIII. Task 3.3. Qualitative Scenario Modelling (QSM)

The main goal of this task is to project the effect of the identified leverage points on the transformation of the food systems in future. In doing so, participatory workshops with external experts (from agriculture, nutrition, sustainability) and the stakeholders from the innovative case studies will be organized. During these workshops, the participants will receive some information/data as a sort of inputs in which they can use to come up with futuristic scenarios. Such inputs are technically all levers identified throughout the project. Hence, the results of the previous tasks will be further analysed and selected and will be used in the workshops in order to develop what/if scenarios to build corridors for future developments. The assumptions on which the scenarios are built could be:

- **Scenario 1:** all identified levers will improve substantially

- **Scenario 2:** identified levers will not improve
- **Scenario 3:** only certain of the identified levers will improve

Last but not least, the knowledge produced in Task 3.1 and 3.2 could be further validated in this task. That is, FCM and ABM will provide some specific scenarios, which could be used as an input to be compared and validated by the experts.

3. Data collection plan

The implementation of the different tasks that require data collection will follow the framework defined in table 5.

Task	Research questions	Involved stakeholders	Territorial level	Methodology	Start date	End date
1.2	What is the reference system of organic sector in different European regions?	Expert consultations	National/ regional	Literature review, European (Farm Accountancy Data Network) and national data base consultation, expert consultation	December 2020	March 2021
2.1	How FS case studies perform in terms of environmental, economic and social outputs?	Expert consultations, farmers	Local	Literature review to identify and select environmental, economic and social indicators; questionnaires to be submitted to farmers	December 2020	September 2023
2.2	How FS case studies perform in terms of environmental sustainability in comparison to mainstream organic systems?	Farmers customers and consumers	Local	Literature review, farmer interviews	December 2021	September 2023
2.3	What are the main added values of the value chains linked to FS case studies?	Stakeholders of the value chains	Local	Semi-structured qualitative expert interviews; Literature review to identify investment indicators for SROI-calculation	May 2021	July 2023
2.4	What are the drivers affecting consumer behaviour intentions?	Consumers	Local	Semi-structured qualitative interviews	December 2021	May 2023

3.1	What are the factors influencing FS case studies according to stakeholder's knowledge?	Stakeholders of the value chains	Local	Interactive workshops (focus group)	November 2021	May 2023
3.2	How complex agri-food system interact with socio-economic, ecological and behavioural aspects?	Stakeholders of the value chains	Local	Data collected in previous tasks will be used	August 2021	November 2023
3.3	What are the effects of the identified leverage points on the transformation of the food systems in future?	Stakeholders of the value chains	Local	Interactive workshops; Data collected in previous tasks will be used	November 2022	November 2023

Table 5: data collection plan related to the different tasks

Since the project aims to investigate the leverage points forward sustainability of organic FS under a complexity and multi-actors' perspective, both at farm level and at value chain level, the involvement of all the stakeholder categories, from farmers to consumers, from retailers to policy makers and other actors is required.

Tasks that need the directly involvement of farmers to collect farm management data of the FS case studies (T2.1, T2.2) should be harmonized since they have a partially complementary data set collection. First, the data needed to implement the PG tool will integrate the farm data requested to carry out LCA. Furthermore, part of LCA data will contribute to the EME assessment.

At value chain level, LCA will also provide information useful to implement task 2.3. At the same time, task 2.4 and 3.1 require the involvement of networks of stakeholders representing the actors of the value chains. However, the synergies between task 2.4 and 3.1 in terms of common data collection are limited since TPB is addressed to consumers while FCM to various stakeholders of the value chains.

Finally, task 3.2 and 3.3 will integrate the different databases created in the previous tasks into models aimed to identify levers and drivers forward the sustainability of the FS.

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