

Concept for a toolkit for transdisciplinary research

Deliverable 3.2

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Date: 22 July 2025



Funded by
the European Union



UK Research
and Innovation

Concept for a toolkit for transdisciplinary research

Document ID	D3.2
Due date	31/07/2025
Submission date	22/07/2025
Dissemination level	Public
Work package	3
Keywords	Toolkit, Transdisciplinary research, Inclusion

Executive summary

Objective

Deliverable 3.2 presents the concept of a toolkit for inclusive inter- and transdisciplinary research.

The purpose of Deliverable 3.2 is fourfold:

- To explore approaches and methodologies of organizing tools in toolkits.
- To elaborate a conceptual framework for FoSSNet toolkit.
- To conceive structure, content and layout of the FoSSNet toolkit.
- To present examples of FoSSNet tools.

Methods

These objectives are addressed by applying the following methods: (i) mapping and review of available toolkits; (ii) in-depth and comparative analysis of four toolkits for inter- and transdisciplinary research; (iii) conceptual analysis and elaboration of a conceptual model for the FoSSNet toolkit; (iv) identification and piloting of practical tools. The concept development has been informed by research activities and their outcomes in WP3 and other work packages.

Results

Different ways of organizing tools in toolkits have been established.

Four toolkits for inter- and transdisciplinary research are analyzed in-depth with regards to their structure, specific tools and strengths and weaknesses.

A conceptual framework and model for FoSSNet toolkit is elaborated. It embraces structural and process dimensions of inclusive research.

Visual solutions for toolkit layout are considered.

Criteria for FoSSNet tools has been established.

The tool description template is elaborated.

An initial list of FoSSNet tools is proposed.

Examples of original FoSSNet tools are piloted and described according to the template.

Activities of further toolkit elaboration are planned.

A list of tools available for toolkit is provided in Appendix.

Document information

Project number	101134861
Acronym	FoSSNet
Full name	Food System Science Network
Project URL	https://fossnet.eu/
EU project officer	Evangelia TZIKA

Date of delivery	Contractual: 31/07/2025YYY	Actual: 22/07/2025
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Revision history

Issue date	Revision number	Reviewer	Modifications
18/07/2025	V1	Internal review by Kelly Rijswijk Emils Kilis	Modification
26/11/2025	V2	Staņislavs Šeiko	Modification

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Abbreviations

Abbreviation	Explanation
WP	Work package
FS	Food systems
FSS	Food systems science

Glossary

Concepts	Purpose of use
Toolkit: A set of purpose-oriented tools of inter- and transdisciplinary knowledge production made available for FSS stakeholder use.	Conceive structure, content, layout and user interface of the FoSSNet toolkit.
Tool: A specific method or technique of inter- and transdisciplinary knowledge production presented in a structured and applicable form.	Provide a clearly structured layout and content of a tool to enable its application by FSS stakeholders.
Food systems science (FSS): an interdisciplinary study of food system drivers, core activities and outcomes AND their dynamic, two-way relationships across time and space. (WP1 definition.)	Present the subject of FoSSNet research engagement and the target of the toolkit.
Food systems (FS): Complex adaptive systems in which human and non-human elements (drivers, actors, outcomes, and feedbacks) interact in food provision. (WP1 based definition.)	Describe the epistemic object of food systems science and to inform the scope of the toolkit.
FS transformation: intervention points for transforming food systems outcomes. (WP1 based definition.)	Conceptualise the mission of food systems science and relate the toolkit to dynamic processes and changes in FS.
FS stakeholders: Individuals and organisations who perform different roles in FS. These include academic and non-academic stakeholders.	Conceive the diversity of academic and non-academic FSS stakeholders and embrace their perspectives when developing specific FoSSNet tools.
Inclusion: Inclusive FSS addresses power imbalances (e.g. gendered, generational, racialized, epistemic) within formal and informal knowledge and innovation processes and provides tools and	Set inclusion dimensions and inclusion target groups as one of central elements when developing specific FoSSNet tools.

knowledge to increase equal participation. *WP3 definition.)	
FSS labs: FoSSNet collaborative platforms where producers, retailers, consumers, policymakers, researchers co-produce knowledge and solutions towards sustainable FS.	Develop original FoSSNet tools based on experiments and experiences of territorial and scientific labs.
Interdisciplinary knowledge production: refers to the creation of knowledge through the synergistic combination of diverse expertise, data sources, and methodologies	Consider tools that consider co-production of knowledge and inclusion of different knowledges.
FSS ecosystem: An interconnected network of practices, actors, and institutions that collectively study and seek to understand food systems.	Orient the toolkit to enable inclusive, adaptive and societally responsive learning, and knowledge creation about FS and their transformation.
Multidisciplinary research: collaborative efforts among research partners from different disciplines to address issues.	To consolidate several perspectives on a singular topic, to divide a comprehensive problem into components, without thorough integration of theories and methodologies.
Interdisciplinary research: collaborative effort of researchers from different disciplines to address a complex problem through a shared and co-creative approach.	To integrate knowledge and methods from several disciplines into a new, shared approach.
Transdisciplinary research: collaboration of multiple academic fields and non-academic partners to address a problem.	To transcend disciplines entirely, incorporating co-design and methods for the development of practical, tangible solutions.

1 Introduction

The FoSSNet Deliverable 3.2 “Concept for a toolkit for transdisciplinary research” is a preparatory step towards producing Deliverable 3.3 “Toolkit for transdisciplinary research” which will be a full and final version of the FoSSNet toolkit – a set of purpose-oriented tools of integrated knowledge production made available for FSS stakeholder use. The toolkit will be developed based on the concept. The toolkit is intended to support researchers and societal actors in carrying out inter-, multi- and transdisciplinary research in an inclusive manner in the context of food systems science. A multidisciplinary research under this toolkit framework is defined as collaborative efforts among partners to address a difficult issue (Yu et al., 2019), necessitating obligatory information exchange (Carr et al., 2018). An interdisciplinary research is defined as a cooperative effort by a team of researchers, each proficient in various methods and concepts, who have united in a structured program to address a complex problem (Omodei et al., 2016). The transdisciplinary approach is characterized by the establishment of a unified conceptual framework that integrates appropriate disciplines (Mumuni et al., 2016), the collaboration of researchers from multiple academic fields to address a problem established in a way that transcends any singular discipline (Aboelela et al., 2006), and a comprehensive investigatory partnership aimed at the creation of novel definitions and methodologies (Grey & Connolly, 2008). Recently the concept of transdisciplinary research includes also collaboration between academic and non-academic partners. In summary, multidisciplinary research gathers diverse expert perspectives on a single issue; interdisciplinary research integrates theories and methodologies into a unified approach for complex problems; and transdisciplinary research collaboratively develops solutions to real-world societal challenges, transcending the boundaries of a single academic discipline and academic and non-academic worlds.

Deliverable 3.2 presents the concept of a toolkit. It outlines foundational principles, structure, and content of the toolkit and provides some examples of key Interdisciplinary research be enriched with new tools in the next period of research. This document presents not an actual toolkit, but the concept for its elaboration.

The purpose of Deliverable 3.2 is fourfold:

1. To explore approaches and methodologies of organizing tools in toolkits.
2. To elaborate a conceptual framework for FoSSNet toolkit.
3. To conceive structure, content and layout of the FoSSNet toolkit.
4. To present examples of FoSSNet tools.

Methodology

This deliverable builds on an exploratory and iterative research process, combining several complementary methods to support the development of the FoSSNet toolkit. The work began with an exploratory desk research phase, including a mapping and scoping review of existing toolkits related to inter- and transdisciplinary research. Analytical categories for comparing toolkits were developed inductively and applied to a comparative analysis of four selected examples. These insights informed the

conceptual development of the FoSSNet toolkit, which was shaped through internal brainstorming, consultation of WP1 and WP3 output, and iterative refinement. Criteria for selecting and evaluating tools were developed collectively, drawing on practical observations from FoSSNet events, tool proposals, and discussions. Selected tools were piloted in various engagement settings to assess their relevance, usability, and contribution to inclusion in food system science.

Guiding principles in toolkit elaboration

Development of the concept for the toolkit (and the actual toolkit) is based on the following principles:

- **Food systems** as an object of intervention of food systems science (FSS).
- **Inter- and transdisciplinary panEuropean network for food systems science** as an overall objective of FoSSNet project. This means that specific tools developed shall be aimed at fostering inclusiveness, cooperation and communication within and across scientific disciplines and across academia, industry and civil society. The toolkit will facilitate inter- and transdisciplinary research in the context of food systems science.
- **Inclusivity**: The principle of inclusivity underlies the purpose of the toolkit. Inclusivity ensures equal opportunity for participation in FSS. It addresses power imbalances (e.g. gender, generational, race, economic disparities, social inequities etc.) aiming to reduce biases and blind spots in order to make FSS more democratic, just and transparent.
- **Openness**: The toolkit shall remain open for further modifications to allow for creativity and updating the toolkit with new tools during the project.
- **Originality**: Two kinds of tools can be included in the toolkit: (i) the tools originally developed and piloted in the FoSSNet project (these will be of particular relevance), and (ii) tools developed in other projects or toolkits with relevance to food systems science.
- **Drawing on different FoSSNet research activities**: The toolkit will respect linkages between work packages. The toolkit shall be based on ongoing FoSSNet research experiences and findings not only in WP3, but also in other work packages (WP1, WP2, WP4, WP5) that also experiment with new methods to facilitate and strengthen the FSS approach.
- **Thematic focus**: Whereas many available toolkits are thematically oriented (e.g. facilitation toolkits, learning toolkits, collaboration toolkits) the FoSSNet toolkit shall be informed by a FSS approach. This means that the toolkit may include methods that stimulate systems thinking and integrated approaches to food research (WP1 oriented tools), food systems science network development (WP2 related tools), inclusion in food systems science (WP3 related tools), stakeholder engagement (WP4 related tools), and integrated learning and training about FS (WP5 informed tools).

It is an intention to produce a toolkit consisting of a minimum of 20 FoSSNet original or adapted tools that cover different aspects of inclusive inter- and transdisciplinary FS research. The work on the toolkit will continue in the months 19-30. The technical layout and template of tools may be fine-tuned during the project.

Deliverable 3.2 is organized in the following sections. After Introduction, Section 2 maps and reviews available toolkits of inclusive and integrated knowledge production. It gives an overview of methodological principles in toolkit elaboration. This section examines more in-depth the content of four toolkits: “Network for Transdisciplinary Research (td-net) toolkit”, “Integrated Research Toolkit”, “The Multi-Stakeholder Partnerships (MSP) guide”, and “Food 2030 Toolkit for public engagement” and provides comparison of their strengths and weaknesses. Section 3 proposes the conceptual framework for FoSSNet toolkit. Section 4 elaborates on the structure and layout of the toolkit. Section 5 provides examples of tools already developed and piloted in FoSSNet project.

2 Approaches to toolkit design

Section 2 presents our work on mapping, reviewing and in-depth analysis of existing tools and toolkits. It explains our methodology of toolkit review and uncovers the logic of toolkit design applied by other projects and research organizations.

2.1 Methodology

To identify and understand existing approaches to toolkit design, a preliminary exploratory desk research method was applied. This method is suitable for gaining an initial understanding of the fragmented and unstructured field of inter- and transdisciplinary research tools (Laursen et al. 2024). As an open-ended, flexible interpretive approach, this method enabled us to review existing toolkits available in different formats, such as project deliverables, academic publications, and websites, and to identify patterns, categories, and gaps in those. In addition to a scientific literature review, we used peer-discussions, circulated academic content (for example, by the Toolkits & Methods Working Group at the Global Alliance for Inter- and Transdisciplinarity), online repositories (for example, the Interdisciplinary Wiki of the University of Edinburgh), and snowballing from these to map tools and toolkits to support transdisciplinary research, in food context as well as other domains. These toolkits were found via various sources, such as websites of food systems research projects, portals of scientific organisations doing research on food systems, platforms of scientific associations promoting interdisciplinary research, websites of food systems policy initiatives (e.g. Food2030), knowledge hubs and repositories of multi-actor projects.

We mapped 15 toolkits designed for inter- and transdisciplinary research. To analyse and compare the selected toolkits, we developed a set of analytical categories that emerged inductively as we reviewed the structure and content of these toolkits and aimed to capture their underlying logic and functional differences. These analytical categories included:

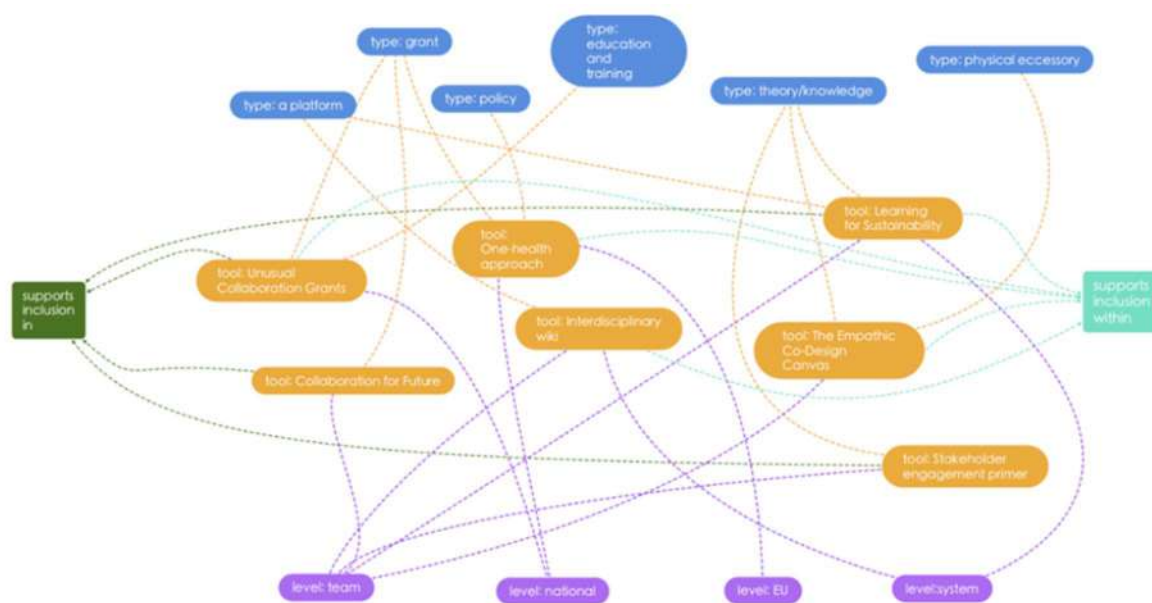
- (i) What these tools are thematically aimed for.
- (ii) What sort of inclusion do they support (e.g. interdisciplinary, transdisciplinary, within the existing network, beyond the existing network).
- (iii) What stage of knowledge co-production these tools focus on.

- (iv) At what level do these tools function (e.g., research team level, national level, European level, systems level).

2.2 Different ways to group and organize tools in toolkits

Figure 1 presents the results of mapping and review exercise, highlighting different modalities and functionalities of existing toolkits.

Figure 1: Mapping of available tools to support transdisciplinary research (Legend: orange – tool name, blue – tool type, pink – level of application, green – tool orientation (include in, include within), lines – tool purpose.)



Based on the review of 15 toolkits, we selected four toolkits for in-depth analysis, considering a purposive sampling. These toolkits were found most relevant for FoSSNet toolkit purposes according to analytical categories outlined above and selection criteria presented in Table 1. The selected four toolkits are:

- (i) [Network for Transdisciplinary Research \(td-net\) Toolkit](#);
- (ii) [Integrated Research Toolkit](#);
- (iii) [The Multi-Stakeholder Partnerships \(MSP\) Guide](#); and
- (iv) [Food 2030: Toolkit for Public Engagement](#).

Table 1: Selection criteria for an in-depth analysis of toolkits

	Network for Transdisciplinary Research (td-net) Toolkit	Integrated Research Toolkit	The Multi-Stakeholder Partnerships (MSP) Guide	Food 2030: Toolkit for Public Engagement
Team or institute type that developed the tool	Academy	Research Institute	University	Project team
Developers' geographical region	Switzerland	New Zealand	The Netherlands	Europe
Context	Knowledge	Research	Multi-stakeholder partnership	Food system
Tool purpose	Co-producing knowledge	Integrating research	Design and facilitate effective multi-stakeholder partnerships	Facilitate transformation

The in-depth analysis of the four toolkits consisted of three steps. The first step was developing the purposive sampling criteria. The second step was analysing how each toolkit is organized and what tools it contains. The third step was using the input generated in the first two steps to develop categories for evaluating strengths and weaknesses and comparing the four toolkits based on these evaluation categories. The authors of this report conducted the three steps individually, and their results were integrated.

2.3 In-depth analysis of four toolkits

We analysed how each toolkit is organized and what tools it contains. We illustrate our analysis with examples of specific methods and tools from the toolkit.

2.3.1 Network for Transdisciplinary Research (td-net) toolkit

The td-net toolkit is a web-based portal that serves as a gateway to a broad collection of methods and tools designed to support collaboration between scientific experts and societal stakeholders. It has been developed by the Network for Transdisciplinary Research of the Swiss Academies of Arts and Sciences.

Structured around two organizational categories – key process phases and cross-cutting issues – the toolbox provides practical guidance tailored to different stages of inter- and transdisciplinary research and practice.

Methods featured in the toolbox are either (i) fully described within the td-net portal through comprehensive method profiles, offering in-depth guidance and application

insights, or (ii) linked externally, with brief factsheets summarizing the approach and directing users to additional resources.

Below in Table 2 we present a table with the two main categories mentioned above, their subcategories, associated description, and examples of tools.

Table 2. Td-net Toolkit organisation

Toolkit Organising Principles	Subcategory	Description	Examples of Tools *
Search by phases	Jointly envisage a transdisciplinary project	Develop a rough project idea	Rich picture, Give-and-take matrix, Design thinking, Outcome spaces framework
		Clarify who to involve	Actor constellation, NetMap tool, Context and actor analysis
		Develop a rough procedure for co-producing knowledge	Design thinking, Functional-dynamic stakeholder involvement, Multi-stakeholder discussion group
	Jointly frame goals, problems and research	Identify relevant understandings of the problem situation	Nomadic concepts, But why technique, Rich picture
		Identify societal knowledge demand	Multi-stakeholder discussion group
		Agree on problem framing and normative conception of a project	Constellation analysis, Three types of knowledge tool, Tell your Story by Means of an Object
		Define achievable project goals	Outcome spaces framework, Theory of change
		Develop subtopics and a concept for integration	Give-and-take matrix, Venn diagram tool, Research Marketplace
	Jointly conduct research	Jointly generate knowledge	Scenario integration, Delphi, Joint fact finding
		Integrate knowledge	Evaluation H, Give-and-take matrix, Research marketplace, Idea Tree, Scenario Integration
		Jointly assess quality with respect to scientific rigour, social robustness...	Emancipatory boundary critique
	Jointly explore ways to impact in science and society	Jointly reconsider ways to impact	Theory of change
		Jointly develop and test ideas,	Design thinking, Soft systems methodology, Constellation analysis

		measures and solutions	
		Jointly evaluate impact	Most significant change, Storywall, Evaluation H
Search by key issues	Identify actors, roles and expectations	Identify actors and clarify who to involve	Actor constellation, Functional-dynamic stakeholder involvement, NetMap tool
		Specify roles, tasks and responsibilities	Give-and-take matrix, Functional-dynamic stakeholder involvement, NetMap tool
		Clarify expectations	Outcome spaces framework, Theory of change, Design thinking
	Embrace differences, tensions and conflicts...	Handle different perceptions and opinions	Emancipatory boundary critique, Toolbox dialogue approach, Multi-stakeholder discussion group, Story object
		Deal with power issues	NetMap tool, Context and actor analysis, Risk & equity matrix
		Deal with tensions in the transdisciplinary group	No specific tool recommended (guidance under "Applying td methods thoughtfully")
		Build ownership and trust	Storywall
	Strive for societal relevance	Review understandings of the societal problem situation	Multi-stakeholder discussion group, Soft systems methodology, Theory of change
		Question scientific framings	Emancipatory boundary critique, Design thinking, Three types of knowledge tool
	Navigating through normative dimensions	Raise awareness on normative dimensions in td research	Three types of knowledge tool, Toolbox dialogue approach, Emancipatory boundary critique
	Integrate different fields of expertise	Relate knowledge and perspectives on the issue	Delphi, Evaluation H, Joint fact finding, Rich picture
		Relate different languages, concepts and narratives	Scenario integration, Collab Game, Constellation analysis
		Relate subtopics and develop a concept for integration	Give-and-take matrix, Nomadic concepts, Venn Diagram Tool
		Relate different quality standards	Toolbox dialogue approach, Tell your Story by Means of an Object, COLLAB Game
	Review process and impacts	Assess a project's impact and related assumptions and expectations	Theory of change, Most significant change, Storywall

		Reflect on process and research question	Storywall, boundary critique, knowledge tool	Emancipatory, Three types of
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*We only provide a few tool examples in the Table 3, the full list is present in the Annex 1 (Table A1)

2.3.2 Integrated Research Toolkit

The [Integrated Research Toolkit](#) was created by Landcare Research, an Aotearoa New Zealand Crown Research Institute (CRI). It is designed as an online resource aimed to support researchers in conducting integrated research. The toolkit features a collection of tools, techniques, tips, and key concepts drawn from various sources, with grounding in the *Integration and Implementation Science Framework*.

To make the content accessible and useful, the toolkit offers multiple entry points; Indeed, general guides provide an overarching orientation for integrated research, while specific guides focus on distinct project phases, such as proposal development and collaborative processes. Additionally, case studies offer practical insights from real-world projects.

A resource gallery displays all available content, allowing users to filter by topic or research phase. Each resource is categorized as either a technique/tool or a concept, and includes links to related materials, helping users explore complementary approaches.

The Integrated Research Toolkit is organized in the following way on the website, through clickable content cards organised in seven sections:

- The section “What is integrated research?” explains that integrated research is collaborative research involving diverse people, knowledges, and disciplines. It outlines when and why to use it, especially for tackling complex environmental issues. It introduces three main types of research: multidisciplinary, interdisciplinary, transdisciplinary.
- The “Common problems and how to work through them” section highlights common challenges researchers face when doing integrated research, gathered through workshops, interviews, and a survey. It also points to helpful resources for overcoming these difficulties.
- “The basics” section presents foundational concepts and techniques for integrated research, serving as a starting point for those new to the approach. These methods are considered essential building blocks – core tools for beginning integrated research.
- The “Techniques for different research phases” section provides techniques and resources tailored to different phases of a research project- – design, implementation, dissemination, and evaluation. It also includes guidance for working in integrated teams, engaging with Māori (the toolkit is made in the New Zealand context), and collaborating with stakeholders.
- The “Working together” section focuses on collaboration in integrated research- – across disciplines, with Māori, and with other stakeholders. It offers resources

to support effective and meaningful partnerships throughout the research process.

- The “Leading integrated teams” section explores how to lead successful integrated research teams. It highlights the importance of intentional team practices when working across diverse perspectives, disciplines, and knowledge systems.
- Finally, the “Case studies” section provides three examples of case studies of integrated research projects.

Table 3 provides a concise overview of the six first sections of the Integrated Research Toolkit described above, along with their associated subcategories and examples of tools presented in each.

Table 3: Integrated Research Toolkit organisation

Main Category	Subcategory	Examples of Tools *
Common problems and how to work through them	Who to involve?	Influence and interest mapping, Systems thinking, Three types of knowledge
	Ways to involve people	Ladder of participation, Stakeholder matrix
	Understanding context	Problems before solutions, Problem tree, Systems thinking
	Scoping the problem area	Problems before solutions, Problem framing, Problem tree, Systems thinking
	Designing for impact	Programme logic, Outcome spaces, Team structures, Theory of change
	Working together	Team roles, Conflict styles, Learning styles, Outcome spaces
	Working with Māori	Collaboration with Māori, Enduring relationships with Māori, Treaty of Waitangi and research, Working with iwi and hapū
	Team communication	Different languages, Socio-ecological network modelling, Problem tree, Systems thinking
	Communicating research	Outcome spaces, Kaupapa Māori
	How did we do?	Collaborative relationship evaluation, Event evaluation
The basics	Key concepts	Problems before solutions, Problem framing, Working with iwi and hapū, Three types of knowledge, Systems thinking, Importance of diversity, Anti-rules for research impact, Communication channels
	Methods	Influence and interest mapping, Outcome spaces, Programme logic
Techniques for different research phases	Who to work with and how	Influence and interest mapping, Three types of knowledge

	Defining and refining research questions	Problem tree, Problem framing, Problems before solutions, Multiple perspectives, 35 Shuffle
	Doing	Timeline mapping, General approaches for integrating knowledge, Outcome spaces, Anti-rules for research impact, Programme logic
	Disseminating	Communication channels
	Evaluating	Collaborative relationship evaluation, Event evaluation
	Teamwork	Team roles, Importance of diversity, Preferred ways of working, What sort of researcher are you?, Different languages, Conflict styles, Competencies for integrated researchers
	Working with stakeholders	Being inclusive, Stakeholder matrix, Ladder of participation, Importance of location, Tips on running workshops
	Working with Māori	Sharing a Kapu Ti, Enduring relationships with Māori, Kaupapa Māori...
Working together	Integrated teams	Learning styles, Importance of diversity, Different languages, Conflict styles...
	Working with Māori	The Ake Ake Model...
	Working with stakeholders	Ladder of participation, Stakeholder matrix, Being inclusive...
Leading integrated teams	Understanding differences	What sort of researcher are you?, Importance of diversity, Team roles...
	Managing diversity	Conflict styles, Competencies for integrated researchers, Collaborative relationship evaluation...

*We only provide a few tool examples in the table, the full list is present in the Annex 1 (Table A1)

2.3.3 The Multi-Stakeholder Partnerships (MSP) guide

The [Multi-Stakeholder Partnerships \(MSP\) guide](#) was developed by the Wageningen Centre for Development Innovation (WCDI) (now part of Wageningen University & Research) and published in 2015. This guide supports those involved in multi-stakeholder partnerships (MSPs) - – including stakeholders, facilitators, leaders, and funders. It combines a clear four-phase process model, seven core principles, key facilitation insights, and 60 participatory tools for analysis, planning, and decision-making. Drawing on WCDI's global experience and annual training course, the guide offers both practical tools and conceptual foundations for effective and inclusive collaboration.

The rationale underlying this guide is that today's complex, interconnected challenges – – such as climate change and social inequality – – cannot be solved by any one actor alone. Multi-stakeholder partnerships enable shared learning, coordinated action, and adaptive responses, making them essential for advancing sustainability and equity.

The MSP Tool Guide is a companion to the MSP Guide. It is a compiled document providing 60 selected process tools that support different stages and needs within Multi-Stakeholder Partnerships (MSPs). This condensed document has been made to facilitate readability and sharing, allowing readers to access easily the list of tools and their description. We find this PDF particularly user-friendly, as it presents the 60 tools clearly organized into six categories in the table of contents, with clickable links that take you directly to each tool's detailed description.

The tools are organized by six core purposes: connection, issue exploration and shared language, divergence, co-creation, convergence, and commitment. These purposes often align with different stages of an MSP process.

Table 4 provides a concise overview of the six categories mentioned above and examples of associated tools.

Table 4: MSP Tool Guide organisation

Category	Examples of Tools *
Connection	Human Spectrogram, Appreciative Story Telling, Ground Rules
Shared Language	World Café, Force Field Analysis, Cynefin Framework, Friends & Strangers, Four Quadrants of Change
Divergence	Role Plays, Six Thinking Hats, Guided Fantasy, Five Colours of Change
Co-creation	Tuckman, Belbin Team Roles, Conflict Styles, Circle of Coherence
Convergence	Prototyping, Citizens Jury, Ritual Dissent, Card Clustering, Socratic Dialogue, A Change of Scene, Silence
Commitment	Set Decision Rules, Make a Visual Theory of Change, Fish Bowl, Option One-and-a-Half, Closing Circle

*We only provide a few examples of tools, focusing on those that don't appear in any other toolkits. The full list is available in Annex 1 (Table A1).

2.3.4 Food 2030 Toolkit for public engagement

The FOOD2030 Project Collaboration Network, coordinated by the University of Copenhagen (UCPH), is a strategic initiative that brings together a wide range of European, national, and regional projects, partnerships, and networks focused on transforming food systems. Its online platform serves as a shared space to access

resources, toolkits, and information, helping users build knowledge and connect with others working toward sustainable food system transformation.

The [toolkit for public engagement](#) aims to support transformative efforts in food systems by providing practical tools for effective stakeholder engagement. Designed for use in settings such as policy labs, food councils, and living labs, it offers guidelines and interactive resources.

The tools address five key objectives of stakeholder engagement in a process-like manner:

- Systems and stakeholder mapping.
- Visioning and planning.
- Experimentation.
- Continuity and scaling.
- Awareness raising.

Recognizing the iterative nature of food system transformation, these objectives and process stages guide users through multiple phases of engagement, enabling inclusive collaboration towards regenerative, resilient food production systems.

The toolkit interactive webpage offers to filter the tools with one of the five categories above. Table 5 provides a concise overview of the five objectives / phases, along with their associated tools.

Table 5: Food 2030 Toolkit organisation

Stakeholder Engagement Objective	Associated Tools
System and Stakeholder Mapping	Stakeholder analysis Developing systems thinking Creating a stakeholder engagement plan Mapping food systems at national and city-regional level Mapping food systems at neighbourhood level Analysing food policies and initiatives Designing multi-stakeholder events Organising focus group discussion
Visioning and Planning	Visioning Future newspaper Forging collaboration via common goal setting
Experimentation	Dynamic learning agenda Science cafés Usability testing Out-of-the-box thinking Appraisal interviews
Continuity and Scaling	Peer learning
Awareness rising	Developing systems thinking Role play Creating an outreach plan Organising a food festival Food science café

2.4 Comparison of four toolkits

In this section we compare the strengths and weaknesses of the four analysed toolkits and identify some foundational principles in toolkit design.

Table 6 below provides a concise summary of the strengths and weaknesses of each toolkit, evaluated across three categories: (i) design/outline, (ii) content, and (iii) user convenience.

Table 6: Strengths and weaknesses of the four toolkits

Toolkit	Design/Outline	Content	User Convenience
Td-net Toolkit	+ Functional layout; multiple entry points via issues or phases. – Visual appeal is limited; not very engaging.	+ Comprehensive and diverse; supports capacity building and reflection. Many tools are explained clearly and concisely. – No overview of tool types; difficult to choose the appropriate tool for a specific purpose; may confuse beginners.	+ Thoughtful navigation logic; extensive resources. – Can feel overwhelming; navigation not fully intuitive (no actual search option);
Integrated Research Toolkit	+ Simple, clean layout. – Feels outdated.	+ Clear explanations with links to more resources; includes context markers like required time/expertise. – Strong New Zealand focus; includes theory mixed with tools without clear labelling.	+ Some tools offer helpful visuals and guidance levels (including level of expertise and time required) – Unclear rationale for the organisational structure; hard to plan a project; not all entries are actual tools.

MSP Tool Guide	+ Clear and well-structured PDF format; visually clean. – Book-style format may seem less dynamic than web-based platforms.	+ Strong practical guidance; includes many original tools; “what/why/how” format well developed. – Some tools are overly generic; colourful elements underused.	+ Easy to navigate despite comprehensiveness; good resource links. – Static format (PDF); lacks interactivity or adaptability.
Food2030: Toolkit for public engagement	+ Organised around clear objectives; decent visuality. – In the full description, dense PDF layout; extra clicks needed to access full content.	+ Tailored to food systems; includes specific tools, templates, and use cases. Extensive and comprehensive. – Some tools are overly long or complex (e.g., multi-month processes); others lack outlines or clarity.	+ Filtering options (e.g., “popular tools”, “which tools should I use?”); online templates. – Multi-step navigation; tools often not “ready to use”; confusion between actual tools and collection of tools; link maintenance required.

The comparative analysis of four toolkits allowed us to establish some common foundational principles in toolkit design and organization. These are presented in Table 7 below.

Table 7: Foundational principles of toolkits design and organization

Category	Principle	Description	Td net toolkit	Integrat ed research toolkit	MSP tool guide	Food 2030 toolkit
Principles of toolkit organisation	Purpose-Oriented	Tools are grouped according to their intended function, such as stakeholder engagement, knowledge integration, or impact assessment.	X	X	X	X
	Process/Phase-	Tools are arranged to align with different	X	X		

	Based Structuring	stages of a research or innovation process (e.g., problem framing, co-design, implementation, evaluation).				
Cross-cutting principles	Target Audience or Actor-Oriented	Toolkits are tailored to specific user groups, such as researchers, policy-makers, practitioners, or community members.	X	X	X	X
	Accessibility and Usability	Tools are presented in a user-friendly and intuitive format, often with visual aids, clear instructions, or decision-support features that help navigating through them.	X	X	X	X
	Flexibility and Modularity	Toolkits allow for adaptation and recombination of tools, enabling users to tailor them to diverse contexts and needs. Tools within a single toolkit are often organised in multiple ways to accommodate different user needs and contexts.	X	X	X	X
	Evidence-Based or Validated Use	Tools are selected based on demonstrated effectiveness, peer validation, or successful application illustrated by case studies.	X	X	X	X

All four examined toolkits are developed within academic or research-oriented environments. Despite the apparent purpose of all four to facilitate collaboration with stakeholders, the driving force of the tools resides inside academia, rather than private sector, public administration, or grassroot movements. This has multiple

consequences regarding transdisciplinarity. The toolkits expressly advocate for the co-production of knowledge, stakeholder engagement, multi-actor processes, and systemic transformation. This indicates a robust dedication to transdisciplinary principles about content and intended application: they offer methodologies for synthesizing diverse information, engaging stakeholders, and addressing intricate social challenges. On the other hand, the inherent researcher design may subtly influence the definition of “good” transdisciplinary practice: issues are identified, classified, and arranged from a research-centric viewpoint (e.g., research phases, integration, evaluation) and structured around notions such as “integrated research,” “researcher toolkits,” or “multi-stakeholder partnerships,” grounded in academic terminology and framework. The transdisciplinarity fostered by these toolkits is, to a certain degree, still influenced by academic worldview, despite efforts to engage with practice and policy. The selection criteria specifically emphasize toolkits that are most relevant for FoSSNet toolkit objectives, with the four selected cases originating from research contexts in Europe or New Zealand. This leads to an absence of diversity within the sample, a narrow spectrum of institutional and geographical experiences, like research- and project-oriented teams in high-income contexts focusing on knowledge, research integration and multi-stakeholder partnerships. The selection under-represents other methodologies for building and organizing tools for transdisciplinary work, particularly those arising from practice organizations, public authorities, or community-led projects.

At the same time, the chosen toolkits are highly appropriate for guiding the design and development of the FoSSNet toolkit which primarily will be aimed for food systems science community use. Overall, they embody a diverse array of organizational logics (e.g., process/phase-based, purpose-oriented, actor-oriented), formats (web portals, online resource galleries, PDF instructions), and levels of guidance (ranging from conceptual frameworks to practical process tools). Each toolkit implements the core principals defined in Table 7 in unique manners, enabling us to determine not only the principles relevant to toolkit design, but also their practical implementation. The variability within a rather cohesive group of research-oriented toolkits offers a strong comparative basis for drawing transferable design insights.

Furthermore, the development and testing of all four toolkits in academic settings represent both a limitation and an advantage. Their instruments and frameworks are built on broad methodological assessment, documented cases, and predefined quality standards. They establish a robust methodological framework for future FoSSNet initiatives and practices.

3 Conceptual framework of FoSSNet toolkit

The exploratory and in-depth analyses of available toolkits as well as ongoing FoSSNet research allow us to develop a conceptual framework of FoSSNet toolkit which is elaborated in Section 3. In this section we develop a conceptual framework of FoSSNet toolkit which explains:

- (i) An elaborated definition of inclusion in FSS,
- (ii) The structuring dimensions of inclusive knowledge production,
- (iii) Phases of inclusive knowledge production.

The conceptual framework was developed through a collaborative and iterative process. It emerged from a series of collective brainstorming sessions within the WP3 team, informed by ongoing work in FoSSNet. More specifically, the model considers WP3's work on analytical framework for the analysis of mechanisms underlying exclusion in food-system research activities, as well as by WP1's work on developing conceptual framework for advancing food system transition science and system thinking within the food system. These internal consultations allowed us to synthesize preliminary insights from literature reviews, case study analyses, and conceptual developments, and to structure our approach towards a toolkit that promotes inclusive and integrated knowledge production in food system science.

3.1 Inclusion in FSS: What does it mean?

Conceptually and practically the FoSSNet toolkit is aimed to foster inclusive inter- and transdisciplinary food systems science. Therefore, the toolkit is informed by the working definition of inclusive FSS developed in WP3 (see Box 1).

Box 1. Definition of inclusive FSS

What: Inclusive FSS addresses power imbalances (e.g. gendered, generational, racialized, epistemic) within formal and informal FOKIS processes and provides tools and knowledge to increase equal participation.

How: by incorporating diverse actors, actor networks and stakeholders and valuing marginalized perspectives, beyond representation, and by explicitly challenging traditional epistemic hierarchies.

Why: Inclusivity ensures a democratic, just, transparent, and relevant FOKIS with equal opportunity for participation in defining, developing and communicating FSS.

The WP3 research emphasizes that inclusivity ensures equal opportunity for participation in FSS. It addresses power imbalances (e.g. gender, generational, race, economic disparities, social inequities etc.) aiming to reduce biases and blind spots in order to make FSS more democratic, just and transparent. It challenges and transforms traditional epistemic hierarchies and democratizes formal and informal knowledge systems by incorporating diverse actors, actor networks and stakeholders and valuing marginalized perspectives.

In FoSSNet, we explicitly focus on the inclusivity of specific groups of food system actors underrepresented in agriculture and food knowledge and innovation systems. Our mission is to better integrate these underrepresented groups into the European Research Area for food systems and foster collaboration between networks of science and practitioners.

In the meantime, WP3 research examines also epistemic exclusion (testimonial, hermeneutical, distributive, procedural, contributory and intersectional) and related injustices (see Table 8). All relevant dimensions and mechanisms of inclusion / exclusion shall be considered in the toolkit to allow the integration of underrepresented groups and epistemic perspectives into the European Research Area for food systems.

Table 8. Dimensions of epistemic exclusion

Epistemic exclusion	Injustice	Example Injustice
Testimonial	Your credibility is unfairly doubted.	"We can't trust their findings; they are too new to the field/ too engaged".
Hermeneutical	Your experiences are misunderstood or dismissed.	"I don't think what you're describing is a form of discrimination. Maybe you're just being overly sensitive"
Distributive	Access to knowledge/educational resources is limited.	"We streamline our departments to build competence centres on usable research and innovation"
Procedural	Excluded from knowledge production and decision-making	"Including community stakeholders would be inefficient."
Contributory	Your contributions are ignored or misrepresented.	"We appreciate your input, but we'll stick with the traditional methods we've always used".
Intersectional	Intersectionality is the overlapping or cumulatively increased form exclusion.	

3.2 Structuring dimensions of integrated and inclusive knowledge production

We developed a conceptual model to visually represent the main building blocks of the inclusive and integrated knowledge production process (Figure 2). Integrated knowledge production refers to the creation of knowledge through the synergistic combination of diverse expertise, data sources, and methodologies (Sustainability Directory, 2025).

To conceptualize the building blocks of integrated knowledge production in our scheme, we selected Academia, Stakeholders, and Knowledges as three distinct categories. This choice builds on, but also goes beyond, the categories proposed in T3.2 – namely *Disciplines*, *Knowledges*, and *Identities*. While T3.2 provides a valuable analytical lens, particularly in highlighting dimensions of inclusion and exclusion, these categories were not fully adequate for a schematic representation of the diverse actors and epistemic resources involved in inter- and transdisciplinary processes.

Our rationale for this reconceptualization is the following:

1. Distinguishing institutional and epistemic arenas

The category *Academia* allows us to clearly delineate the institutional and disciplinary structures of formal research. This includes not only disciplinary knowledge, but also

the norms, incentive structures, and epistemic cultures (Knorr-Cetina, 1999) that shape knowledge production within universities and research institutions. By isolating academia as a category, we highlight the *within-discipline* and *between-discipline* dynamics emphasized in T3.1's analysis of exclusion mechanisms.

2. Recognizing stakeholders as active co-producers

The term *Stakeholders* captures the plurality of societal actors beyond academia who hold experiential, local, indigenous, or practice-based knowledge. Unlike the T3.2 category of *Identities*, which focuses more on positionality and representation, *Stakeholders* foregrounds actors' roles in shaping research agendas and contributing to co-production processes (Mauser et al., 2013; Lang et al., 2012). It better aligns with the “beyond academia” level of exclusion identified in T3.1, which calls attention to the structural barriers preventing meaningful engagement with non-academic partners.

3. Centering plurality through knowledges

We retain *Knowledges* as a third category to emphasize the plurality and heterogeneity of epistemologies at play. This resonates with feminist and decolonial critiques of epistemic authority (Haraway, 1988; De Sousa Santos, 2014), and serves to underline that knowledge is not neutral. Placing *Knowledges* as a distinct block reinforces the idea that integrated knowledge production involves navigating and valuing diverse ways of knowing – scientific, local, indigenous, tacit, and experiential.

For the purposes of the toolkit and its visual representation, our goal was not just analytical precision but also *schematic clarity*. We aimed to create an actionable visual framework that captures the institutional, social, and epistemic dimensions of integrated knowledge production. By separating *Academia* and *Stakeholders*, and retaining *Knowledges* as a central and transversal category, we aim to operationalize the concepts of inter- and transdisciplinarity in a way that supports inclusivity, reflexivity, and collaboration.

As a result, the three categories depicted – academia, stakeholders, and knowledges – are shown as distinct elements of FSS that are interconnected and interacting.

The “academia” building block is deconstructed to reveal its internal composition. It emerges from the interplay between individual and institutional dimensions, which together shape what we understand as academia.

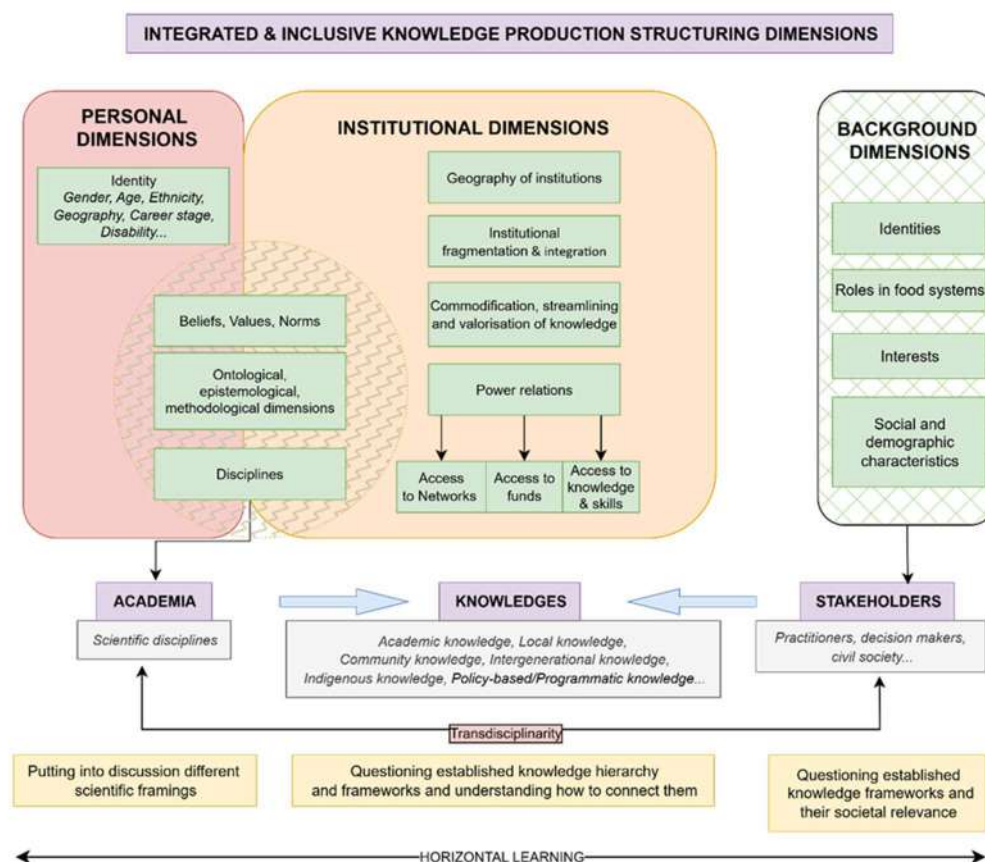
The “stakeholder” category is not deconstructed in the same level of detail within the scheme. This choice was made to preserve visual clarity and focus. However, it is important to recognize that the stakeholder category is equally complex. To reflect this, the scheme briefly suggests that stakeholders are shaped by diverse background dimensions – such as identities, roles within food systems, interests, and social or demographic characteristics – all of which influence their perspectives and contributions to the knowledge production process.

Within this framework, the “knowledges” are co-produced by both academic and stakeholder groups, each contributing their unique perspectives, skills, and methods. Indeed, integrated knowledge production refers to the creation of knowledge through the synergistic combination of diverse expertise, data sources, and methodologies (The Sustainability Directory, 2025). Here, “knowledges” are not simply viewed as a static products, but as the outcome of an integrative, collaborative process. Indeed, the “integrated” aspect emphasizes more than the mere collection of information from various sources – it involves the active synthesis of these inputs to generate a more comprehensive and robust understanding (Sustainability Directory, 2025).

The aim of this visual representation is to highlight the key dimensions that should be considered when designing inclusive, inter- and transdisciplinary research projects. Numerous factors – such as individual identities, personal beliefs, institutional norms or interests – shape actors within the academia and beyond, influencing how knowledge is both produced and interpreted. These interactions contribute to the generation of diverse forms of knowledge, represented at the centre of the diagram. Recognizing and valuing these multiple knowledges as equal is essential for achieving a comprehensive understanding of the issue or context at hand.

By acknowledging the dynamic interplay between personal/institutional/background dimensions, academia, stakeholders and knowledge systems, the model emphasizes the complexity and richness of integrated and inclusive knowledge production.

Figure 2. Structuring dimensions of integrated and inclusive knowledge production



3.3 Different stages of integrated & inclusive knowledge production

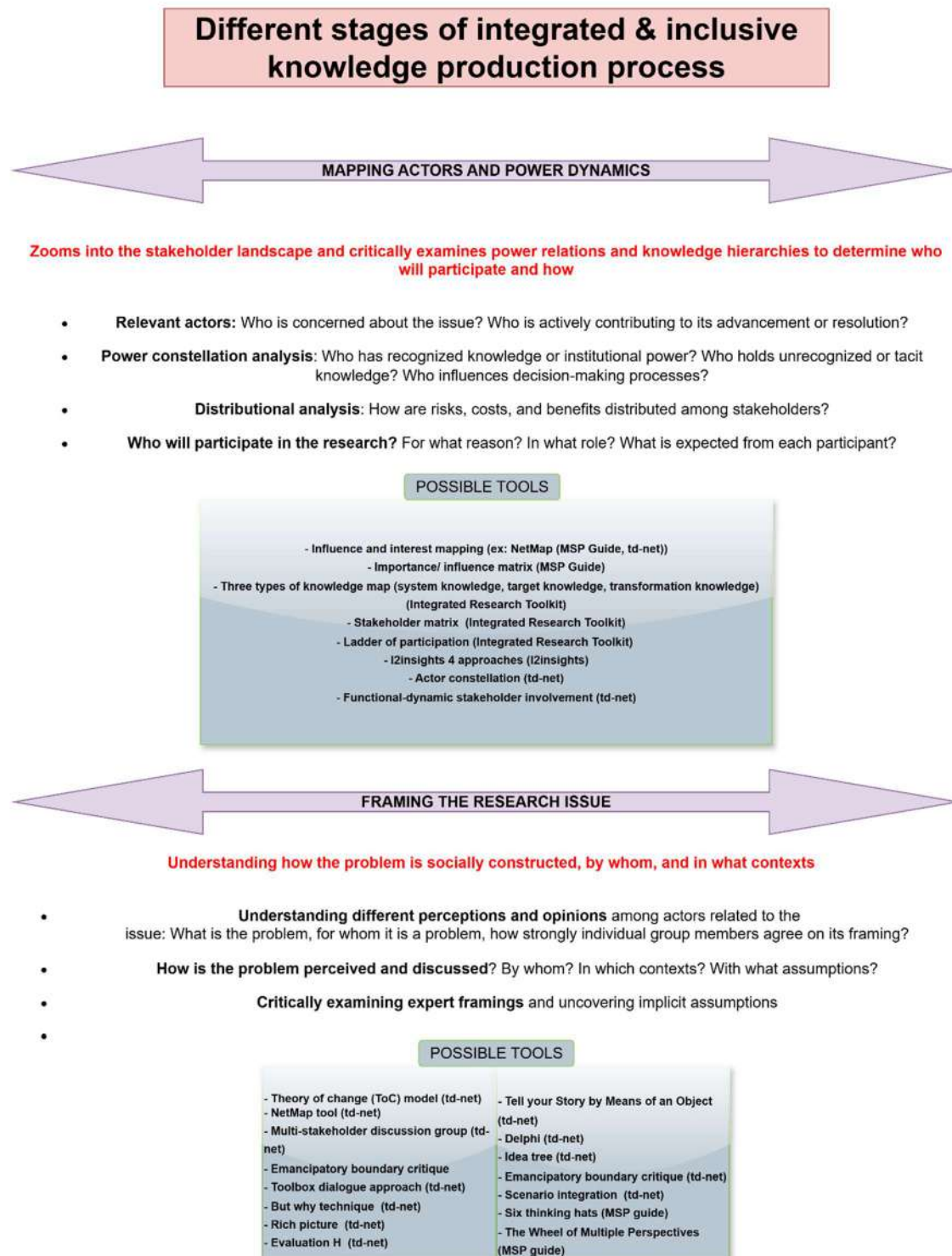
While Figure 2 illustrates structuring dimensions of inclusion / exclusion, Figure 3 below captures the inclusion / exclusion process dynamics. Both figures compose a conceptual model and are developed basing on the review of available toolkits and WP3 team internal discussions and methodology developments.

Figure 3 is intended to represent the different stages of integrated and inclusive knowledge production. Examples of tools mentioned in the figure could be associated to each stage of the knowledge production:

- Mapping actors and power dynamics;
- Setting collaborative arrangements and engaging;
- Framing the research issue;
- Setting the criteria for knowledge and evidence production;
- Bridging diverse fields of knowledge;
- Organizing and reviewing the collaboration process.

These process stages draw inspiration from the existing toolkits analysed above. Organizing the tools into categories based on different stages of integrated and inclusive knowledge production enables users to select those best suited to their current needs in the research process.

Figure 3. Process dynamic of integrated and inclusive knowledge production



SETTING THE CRITERIA FOR KNOWLEDGE AND EVIDENCE PRODUCTION

Critically assessing dominant knowledge systems and determining appropriate epistemic approaches, evidence standards, and strategies for managing disagreement and power in knowledge production

- **Epistemic conventions** = What knowledge systems are usually dominant in this topic? :
 - Understanding differences in strategies for approaching a problem
 - Deciding what type of data will constitute scientific evidence
- **Deciding how to deal with disagreements about facts** and their meanings
- **Dealing with power issues** in knowledge production

POSSIBLE TOOLS

- Design thinking (td-net)
- Three types of knowledge tool (td-net)
- Tell your Story by Means of an Object (td-net)
- Emancipatory boundary critique (td-net)
- Toolbox dialogue approach (td-net)
- Forms of power (MSP guide)
- Power ranking (MSP guide)
- Conflict Styles (MSP guide)

BRIDGING DIVERSE FIELDS OF KNOWLEDGE

Facilitating inclusive and non-hierarchical exchange of diverse knowledges across disciplinary, professional, and cultural boundaries, using varied modes of expression

- **Collecting and interrelating group's knowledge** with a means of expression that removes potential hierarchies between participants.
- **Acknowledging community values** that go beyond practical skills as part of local knowledge
- **Exchanging understandings of concepts** across disciplinary, professional and cultural boundaries
- **Comparing scientific conventions** of different academic fields involved in research
- **Using different ways to represent and communicate knowledge** (art, stories...)

POSSIBLE TOOLS

- | | |
|---|---|
| <ul style="list-style-type: none"> - Context immersions (MSP guide) - Rich picture (td-net) - Idea tree (td-net) - Joint fact finding (td-net) - Collab Game (td-net) - Evaluation H (td-net) - The risk & equity matrix (td-net) - Design thinking (td-net) - Research marketplace (td-net) | <ul style="list-style-type: none"> - Soft system methodology - Storywall - Toolbox dialogue approach (td-net) - Give-and-take matrix (td-net) - Nomadic concepts (td-net) - Role plays (MSP guide) - Six thinking hats (MSP guide) - The Wheel of Multiple Perspectives (MSP guide) - Five Colours of Change (MSP guide) |
|---|---|

ORGANIZING AND REVIEWING THE COLLABORATION PROCESS

Facilitating strategic, adaptive, and reflective collaboration among diverse teams for effective knowledge co-production

- **Organizing collaboration** among different project teams
- **Fostering shared vision and strategic alignment**
- **Enhancing adaptivity and resilience**
- **Reflecting on the collaboration process** and participant's experience on knowledge co-production

POSSIBLE TOOLS

- Research marketplace (td-net)
- Venn diagram tool (td-net)
- Storywall (td-net)
- Tuckman (forming, norming, storming, performing) (MSP guide)
- Belbin Team Roles (MSP guide)
- Scenario Planning (MSP guide)

4 Layout and structure of toolkit

In this section we develop ideas for the structure and layout of the toolkit, propose criteria for FoSSNet tools, provide an initial list of tools and elaborate on tool description template. We also outline the further process of toolkit elaboration.

4.1 Creative imaging and graphical layout of toolkit

While continuing to work on the toolkit, we shall consult an artist and graphic designer to possibly develop an attractive visualisation and layout of toolkit. Possible visualisations may include infographics, images, drawings, icons. These visuals may help to designate tool types / categories, convey their purpose, present application scenario, etc. The graphical layout may help to organise the toolkit in a user friendly and easy to navigate manner.

We shall decide on the final format of the toolkit which may take shape of: (i) an online pdf document, (ii) an online infographic, (iii) an online clickable and interactive toolkit with possibilities to navigate the content. Table 9 gives some initial ideas about possibilities of visual organisation of the toolkit. The visualisation approach is based on artistic imagination and es creative association. The visual approach is not intended to substitute conceptual one but to complement it. In fact, the conceptual and visual approaches could be combined.

Table 9. Possibilities of toolkit visualisation

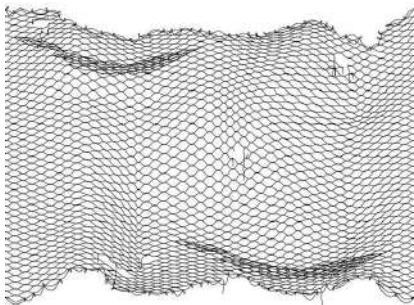
Examples of graphical images	Legend and possible grouping of tools
	Image of FSS as a growing tree. ✓ Tools for nourishing (FSS roots) ✓ Tools for flourishing (FSS branches, leaves) ✓ Tools for harvesting (FSS fruits) (E.g icon of spade and irrigation may be used to designate the purpose of specific tools, in this case – caring of roots that allow FSS to grow healthy.)
	Image of FSS as a network. ✓ Tools for network building ✓ Tools for collaboration and communication ✓ Tools for network governance ✓ Tools for network maintenance and growth (E.g various network icons with nodes, links, central and peripheral actors, gatekeepers may be used to designate the purpose of specific tools. Also, in relation to WP2 effort to facilitate a pan-European FSS network.)

	Image of FSS as a pie chart. ✓ This is a traditional way to organise toolkit. ✓ Tools are grouped in clusters according to main themes of inclusive and integrated knowledge production. ✓ Each cluster of tools is given a name and visualised with an icon.
	Image of FSS as an onion. ✓ This is the FoSSNet logo. ✓ Layers of a sliced onion symbolise different aspects of FSS. ✓ Tight layers symbolise collaborations. (The image well conceives the growth of FSS as a field of knowledge, however, WP3 team decided to base visualisation of the logo.)

4.2 Criteria for FoSSNet tools

Based on analysis done in sections 2 and 3, we have elaborated criteria for FoSSNet tools to qualify for the toolkit. These criteria were developed through combining internal reflections with practical observations and experiments. Proposal made by WP3 team members based on their experience were first discussed. In parallel, potential tools were observed, and selected tools were tested in pilot settings during various FoSSNet activities (e.g., workshops) to evaluate their practical applicability. Insights from these observations and piloting were documented.

The proposals and insights were further refined in several task-meetings. In these meetings, potential tools were assessed based on their relevance to inclusive- and transdisciplinary food research. This assessment, along with conceptual inputs from WP3 and alignment with FoSSNet's broader objectives, informed the development of a set of criteria to guide tool selection.

The resulting criteria embrace the spectrum of inclusion / exclusion dimensions, structuring factors, and processes of integrated knowledge production. The criteria set the scope of the toolkit. While not every individual tool has to match all criteria, the toolkit should cover all criteria. Table 10 outlines the criteria proposed and illustrates how specific tools correspond to certain criteria. Table 10 also includes provisional list of tools suggested during WP3 discussions. Not all of them might be elaborated for the final toolkit.

Table 10. Criteria for FoSSNet tools

Nr	Tool name	Inclusion criteria							
		Personal	Institutional	Geography	Scientific	Non-academic	FSS network	Collaborative	FSS integration

		dimens ions	dimens ions		discipli nes	stakeh olders	develo pment	researc h	
1	FS thinking tool	+	+		++	+++	+	+	++
2	FSS Early stage researcher community	+++	++	++	++		+	+	++
3	FSS conference	+	+	+	++				+++
4	FSS territorial labs		+	+	++	++	+		+
5	FSS training module	++	++	++	++	+	+		+
6	FSS inclusivity workshop	++	+	+	++	+	++	+	+
7	FSS gender and diversity tool	+++	+	+			+	+	+
...									
20									

4.3 Tool description template

In this section we present the template of tool description (Table 11). This template can be filled in after practical piloting and finetuning of tools. The tool description is done by FoSSNet researchers, however, including feedback and suggestions by users / other FS stakeholders, if possible.

Table 11. Template of tool description

Category	Description
Tool name	A concise tool name. Possibility to design a tool icon.
Original or adapted	Is the tool originally developed by FoSSNet project? Or is it by other projects and adapted for FoSSNet purposes?
Purpose of use	What is the main purpose of tool use? Specify the purpose within the scope of inclusive FSS and FSS network building.
Inclusivity dimensions / challenges addressed	Which dimensions of inclusive research on FS the tool addresses? E.g.: personal (gender, career stage), geographic, institutional, disciplinary, transdisciplinary, epistemic, network, collaboration, etc.
Application scenario	Stepwise description of tool logic that can be applied in different FS contexts and stakeholder arrangements
Practical implementation	How is the tool applied? In what settings? Who is the target group? Which stakeholders participate? How interaction happens? What kind of facilitation is needed? What technical means can be used? Include photos, graphs from tool application event.
Outcomes and impact	What is the tool application outcome? Which inclusion criteria the tool impacts most? How this has been assessed? What are FoSSNet researchers' observations and reflections?
Stakeholder feedback	Has the tool been assessed by users / participants / FS stakeholders involved in application? What is their feedback? Data from stakeholder / participant surveys, interviews, conversations may be used
Research and piloting basis	Which FoSSNet WP, research activities, findings, experiences the tool is based on?
Evaluation	What are the strengths and weaknesses of the tool? What are main learnings from tool application? Are there any tips?

4.4 Further process of toolkit elaboration

The production of FoSSNet toolkit (Deliverable 3.3) will take place during the project months 19-30 (August 2025 – July 2026) and will be tied to ongoing research activities in WP2, WP3, WP4, and WP5. We will identify tools and develop them with inputs from various work packages and with relevance for various inclusive FSS aspects and building blocks.

Table 12 presents the intended steps in toolkit development and their indicative timing.

Table 12. Steps in toolkit development

Activities	Timing
1. Identification / proposition of tools	September 2025 – January 2026
2. Consultation with WP3 team and decision on tool inclusion in the toolkit	October 2025 – March 2026
3. Approbation, piloting and finetuning of tools	October 2025 – April 2026

4. Tool description according to template	November 2025 – May 2026
5. Approval by WP3 team	November 2025 – May 2026
6. Visual and technical layout of toolkit	April 2026 – July 2026

Tools will be elaborated step-by-step. The process and outcomes will be discussed at regular WP3 meetings, which will also approve the final descriptions of tools. We aim to produce 20 original FoSSNet tools.

5 Examples of tools

In Section 5 we present examples of tools already piloted in the FoSSNet project and described according to the template.

5.1 Tool 1: Food systems thinking tool

Category	Description
Tool name	Food systems thinking tool.
Original or adapted	Originally developed by FoSSNet project.
Purpose of use	To stimulate stakeholder engagement with food systems thinking and reflecting on food issues at systems level.
Inclusivity dimensions / challenges addressed	The tool is intended to stimulate interaction and knowledge cocreation among various FS stakeholders. It is suitable for academic and non-academic interaction, crossing disciplinary and transdisciplinary boundaries. The tool facilitates thinking about food issues at systems level by drawing attention to drivers, conditions, outcomes and feedback of food system activities. The tool addresses disciplinary, transdisciplinary, and epistemic dimensions of inclusive research.
Application scenario	The tool is applied in several steps. • Visual mapping of FS to demonstrate the system complexity. This is done by demonstrating and explaining the FoSSNet FS map. • Identification of an entry point into the food system. The entry point can be an issue, FS activity, agent, outcome, etc. It is chosen by workshop participants. • Collective discussion about food system interaction around an entry point, topic. • Narrative development about the way food issue functions at systems level, and what are implications at FS level. • Identification of questions and topics for inclusive and societally responsive food systems science.
Practical implementation	Application format: facilitated thematic workshop.

	The tool was applied at SkeptiCafe and FoSSNet co-hosted event "Diet Battles" organised at Āgenskalns market in Riga within the framework of FoSSNet WP4 Territorial Lab. 47 participants from local community, as well as researchers of different disciplinary backgrounds took part. The purpose was to introduce FS perspective when discussing specific issue, in this case – diets and food habits. First, the workshop started by FoSSNet researchers demonstrating and explaining the FS map. Second, then facilitator gave floor to representatives of specific diets (vegan, fitness diet, non-carbohydrates diet) who commented on their eating habits and reflected on impact on individual wellbeing and wider food systems. Third, another panel was composed of scientists (a food economist, a nutritionist, a sociologist) who reflected on diets, their impacts. Audience was involved in discussion. Fourth, notetaker documented discussion and posted comments on the FS map. Thus, the map got populated with stakeholder remarks regarding diet impacts on FS. FS map was used as a boundary object to stipulate discussion.
Outcomes and impact	<i>Section will be written after full processing of workshop results.</i>
Stakeholder feedback	Workshop participants filled survey answering several questions: • How do you characterise your diet / food habits? • How do you assess the impact of your diet on food systems? • What is your main takeaway from this exercise? • What issues should scientists investigate in relation to diets and food systems? <i>Section on stakeholder feedback will be written after full processing of workshop results.</i>
Research and piloting basis	The tool idea emerged during FoSSNet conference and consortium meeting in Oxford, specifically workshop on FS thinking. Afterwards the tool was developed and piloted at workshop of FSS territorial lab in Riga on July 3, 2025. The tool inspires from and could be of relevance for WPs 1,2,3 and 4.
Evaluation	<i>Section on tool strengths and weaknesses and main learnings will be written after full processing of workshop results.</i>

Images from the workshop



6 Conclusion

Deliverable 3.2 presents the concept of a toolkit for inclusive inter- and transdisciplinary research on food systems. This deliverable will serve as a methodology and roadmap for producing the actual toolkit (Deliverable 3.3).

We summarize the concluding remarks in bullet-points:

- It was a challenge to map and review the existing tools and toolkits given their diversity and fragmentation and different logics of toolkit organization.
- We emphasize the importance of considering the type, level, and mode of inclusion when designing tools for inter- and transdisciplinary FSS.
- Things to keep in mind when developing the toolkit: usability across research-phases, levels, and actor constellations; flexibility vs. adaptation (for a specific purpose, food-topic, working style and working culture).
- We plan to explore more principles to guide the toolkit design and test whether they are suitable for our goal. For example, the principle of embracing differences (rather than erasing them) while aiming for inclusion.
- Capacity of the toolkit to be a blueprint that could be modified to fit non-food contexts.
- We will apply observations from T3.3 (monitoring and evaluating methods to support inclusive inter- and transdisciplinary food research to test our toolkit throughout its development process to have a reliable result.
- The further process of actual toolkit elaboration will happen in iterative process among the WP3 team and in consultation with other WPs.

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Appendix I Complete list of Tools Included in the Four Analysed Toolkits

Nb: In bold tools that appear in at least two of the four toolkits

TD NET Tools (30 tools)	Integrated Research Toolkit (27 tools)	MSP Tool Guide (60 tools)	Food 2030: Toolkit for public engagement (22 tools)
	Stakeholder analysis	Stakeholder Analysis	Stakeholder analysis
Theory of change	Theory of change		
Rich picture		Rich Picture	
Give-and-take matrix	Give and take matrix		
Delphi		Delphi	
	Problem tree	Problem Tree	
	Multiple perspectives	Multiple Perspectives	
NetMap tool		NetMapping	
		Visioning	Visioning
Evaluation H		Evaluation	
	Silence as a tool	Silence	
Actor constellation			
Functional-dynamic stakeholder involvement			
Context and actor analysis			
Tell your Story by Means of an Object			
Constellation analysis			
Design thinking			
Evaluation H			
3-Kreise-Modell für Akteurskonstellationen in Reallaboren			
Multi-stakeholder discussion group			

Venn diagram tool			
Outcome framework spaces	Outcome spaces		
Toolbox approach dialogue			
Risk & equity matrix			
COLLAB Game			
Idea Tree			
Joint fact finding			
But why technique			
Emancipatory boundary critique			
Research marketplace			
Storywall			
Soft methodology systems			
Three types of knowledge tool			
Scenario integration			
Nomadic concepts			
Most significant change			
	35 Shuffle		
	Collaborative relationship evaluation		
	Conflict styles	Conflict Styles	
	Event evaluation		
	Infinity exercise		
	Influence and interest mapping		
	Ladder of participation		
	Outcome spaces		
	Preferred ways of working		
	Problem framing		
	Programme logic		

	Scenario assessment		
	Social-ecological network modelling		
	Stakeholder matrix		
	Systematic literature reviews		
	Team roles		
	Timeline mapping	Timeline	
	Tips on running workshops		
	Useful words in te reo Māori		
	What sort of researcher are you?		
	Working with iwi and hapū		
		Introductions	
		Human Spectrogram	
		Semi-structured Interviews	
		Stakeholder Identification	
		Appreciative Story Telling	
		Questionnaires; Surveys	
		Problem Definition Worksheet	
		Ground Rules	
		Stakeholder Characteristics & Roles Matrix	
		World Café	
		Force Field Analysis	
		Context Immersions	
		SWOT Analysis	
		Visual Reminders	
		Cynefin Framework	

		Friends & Strangers	
		Trendline	
		Four Quadrants of Change	
		Adjust Group Size	
		Role Plays	Role play (simulation)
		Forms of Power	
		Six Thinking Hats	
		Power Ranking	
		Guided Fantasy	
		Five Colours of Change	
		Combining Ideas That Might Work Together	
		Tuckman (forming, norming, storming, performing)	
		Belbin Team Roles	
		Scenario Planning	
		Partnership Agreements	
		Open Space	
		Document & Summarise	
		Circle of Coherence	
		Prototyping	
		Prioritising and Ranking	
		Comparing Proposals	
		Citizen jury	
		Ritual Dissent	
		Card Clustering	
		Socratic Dialogue	
		A Change of Scene	
		Set Decision Rules	
		Make a Visual Theory of Change	
		Polls	
		Fish Bowl	
		Reflection	
		Synthesis	

		Option One-and-a-Half	
		Closing Circle	
			Dynamic learning agenda
			Developing systems thinking
			Peer learning
			Creating a stakeholder engagement plan
			Mapping food systems at National and City-regional level
			Mapping food systems at neighbourhood level
			Future newspaper
			Science cafés
			Analyzing food policies and initiatives
			Designing multi-stakeholder events
			Forging collaboration via common goal setting
			Organizing Focus Group Discussions
			Usability testing
			Out-of-the-box thinking
			Creating an outreach plan
			Appraisal interviews
			Serious games
			Organising a food festival
			Food science café