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Evaluating the AKIS Strategic Approach in CAP Strategic Plans

Guidelines

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List of acronyms

AIS	Agricultural Innovation Systems
AKS	Agricultural Knowledge System
AKIS	Agricultural Knowledge and Innovation System
CAP	Common Agricultural Policy
CAP SP	CAP Strategic Plan
CD-AIS	Capacity Development - Agricultural Innovation System
CCO	Cross-Cutting Objective
DG AGRI	Directorate-General Agriculture and Rural Development
EC	European Commission
EIP	European Innovation Partnership for Agricultural Productivity and Sustainability
EIP OG	Operational Group under CAP funding
EU	European Union
FAO	Food and Agriculture Organisation
ISS	Innovation Support Services
MA	Managing Authority
MAPP	Method for the Assessment of Programmes and Projects
NARS	National Agricultural Research System
OECD	Organisation for Economic Co-operation and Development
PMEF	Performance Monitoring and Evaluation Framework
RAAIS	Rapid Appraisal of Agricultural Innovation Systems
RDP	Rural Development Programme
RMA	Reflexive Monitoring in Action
SCO	Simplified Cost Option
SME	Small and Medium-sized Enterprises
SNA	Social Network Analysis
SO	Specific Objective
SWOT	Strengths, Weaknesses, Opportunities and Threats
UFE	Utilisation-Focused Evaluation

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Introduction

Importance of AKIS

The Agricultural Knowledge and Innovation System (AKIS) concept has become an integral part of the next Common Agricultural Policy (CAP) for the 2023-2027 period as it is now integrated into the design of CAP Strategic Plans (CAP SP) 2023-2027, which will support advice, training and interactive innovation projects on all CAP objectives, will support knowledge exchange opportunities and will help link farmers with advice and research. Farmers and foresters are at the heart of knowledge exchange, innovation and collaboration within their Member States' AKIS, reflecting the need for all actors within a system to be involved for it to function effectively.

The new CAP provides the opportunity for Member States and regions to fund a number of actions aimed at knowledge exchange and innovation in line with their AKIS strategic approach[1] and in order to reinforce their AKIS. A reinforced AKIS will aim to integrate all the actors in the system, in a structured and systematic way, ensuring more effective knowledge flows and exchange inside Member States and across borders. Given the available resources, this will contribute to the efficient achievement of the Cross-Cutting Objective (CCO) of modernisation and the other nine Specific Objectives (SO) of the CAP.

Purpose of the guidelines

The EU legal framework requires Member States to carry out evaluations of their CAP Strategic Plans both during implementation and ex post to improve the quality of the design and implementation of the plans[2]. When evaluating their CAP Strategic Plans, Member States shall define evaluation questions and factors of success to assess the evaluation criteria[3] of effectiveness, efficiency, relevance, coherence and European Union added value[4] and also assess the impacts[5] of their CAP Strategic Plans in relation to their contribution to achieving the CAP general and specific objectives. Furthermore, the Implementing Regulation of CAP Strategic Plans (Commission Implementing Regulation (EU) 2022/1475) stipulates that, where relevant, and based on Member States' evaluation needs as well as the intervention logic of CAP Strategic Plans, Member States shall assess specific interventions or topics[6], including AKIS.

The 'Evaluating the AKIS strategic approach in the CAP Strategic Plans' guidelines are non-binding in nature. These guidelines aim to provide examples of evaluation elements that can be further adapted to the needs and AKIS context of the Member States.

In this respect, these non-binding guidelines aim to support Member States in their evaluations of the AKIS strategic approach by:

- Informing and raising awareness about the importance of assessing AKIS in the context of the CAP policy framework as a driver for contributing to the CCO of modernisation.
- Providing clarifications on key concepts related to AKIS in order to facilitate Member States' choices on what to evaluate and when.
- Providing support for developing relevant evaluation elements and identifying relevant methodological approaches to carry out evaluations of the AKIS strategic approach.
- Examining the challenges for evaluating AKIS and providing practical examples to help translate these guidelines into practice.

The use of these guidelines needs to be fully adjusted to the needs and AKIS context of Member States. Managing Authorities (MA) should be aware that there is no 'one size fits all' approach and that the right mixture of evaluation topics and evaluation approaches in relation to AKIS shall eventually be decided by the MA themselves.

Target groups for these non-binding guidelines

These guidelines are addressed to Managing Authorities and evaluators of the CAP, as well as other experts and evaluation stakeholders who are interested or involved in AKIS and AKIS evaluations.

Structure and content of the guidelines

The guidelines are divided up into the following chapters:

- Chapter 1 introduces the AKIS concept in the CAP policy framework;
- Chapter 2 gives a brief overview of evaluation phases when assessing the AKIS strategic approach;
- Chapter 3 focuses on the key legal requirements and objectives of the evaluation of AKIS, proposes key steps for planning and preparing evaluation and suggests key elements to assess the AKIS strategic approach;
- Chapter 4 proposes key steps for structuring evaluation and an evaluation framework (evaluation criteria, evaluation questions, factors of success and indicators) that Member States can use when taking into account the intervention logic of AKIS in their CAP Strategic Plans. The theory of change as a suggested overall approach for evaluation of the AKIS strategic approach is described in this chapter along with suggested evaluation methods;

[1]Recital 85 of the Regulation (EU) No 2021/2115 and Sections 8.1 and 8.2 of the CAP SP according to Article 114 of Regulation (EU) No 2021/2115.
[2]Article 140 of the Regulation (EU) No 2021/2115.
[3]For definitions of the evaluation criteria, see: Better Regulation Toolbox - Chapter 6 (europa.eu)
[4]Article 1 (1) of Commission Implementing Regulation (EU) No 2022/1475.
[5]Article 2 (b) of Commission Implementing Regulation (EU) No 2022/1475.
[6]Article 2 (d) of Commission Implementing Regulation (EU) No 2022/1475.

- Chapter 5 reflects on key issues to be considered in terms of conclusions and recommendations;
- Chapter 6 describes the proposed governance arrangements for evaluating the AKIS strategic approach;
- Chapter 7 offers a practical demonstration example as to how to apply the guidelines in practice;
- Finally, the annexes provide more detailed information on particular aspects:
  - a short literature review on AKIS and short explanations of key concepts of AKIS and their relevance for evaluation;
  - overview of recommended working steps of the evaluation of the AKIS strategic approach;
  - methods (including examples and references) for evaluating the AKIS strategic approach;
  - a list of information sources and a glossary of key terms.

1. The AKIS concept in the CAP policy framework

This chapter aims to clarify the conceptual framework of the AKIS by focusing on what it means in the context of the CAP policy framework. The chapter is supported by three annexes, offering the reader a more detailed look at the history of the concept as well as a description of the various concepts within AKIS and a description of the role of the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP).

1.1 AKIS definition within the CAP policy framework

The Agricultural Knowledge and Innovation System (AKIS) is a concept which reflects the need to have a systemic approach in enhancing knowledge flows and innovation in agriculture and rural areas. It has evolved over time (see Annex I for a literature review on the evolution of the concept) into what is currently used in EU policy as a concept that describes the **different actors and sources of knowledge and their interactions allow for the co-production of new knowledge and innovation on a continuous basis**.

The **definition of AKIS** provided by Regulation (EU) No 2021/2115 (EU Regulation relating to CAP Strategic Plans) is about "the combined organisation and knowledge flows between individuals, organisations, and institutions who use and produce knowledge for agriculture and interrelated fields"[7] .

This definition simplifies a more comprehensive conceptualisation of AKIS that encompasses **all agricultural and other actors from interrelated fields and organisations** (farmers, foresters, farmers' and foresters' organisations and cooperatives, advisors, researchers, trainers, rural entrepreneurs, non-governmental organisations (NGO), public authorities, etc.) **that generate, share and use knowledge and innovation for agriculture and interrelated fields**: rural areas, value chains, landscape, environment, climate, biodiversity, consumers and citizens, food and non-food systems including transformation and distribution chains, etc.[8] (Annex 2 offers a more detailed description of the various concepts within the AKIS).

1.2 Where does AKIS stand in the new CAP?

In the 2023-2027 CAP, the AKIS strategic approach has been enshrined for the first time in the policy architecture and contributes to the Cross-Cutting Objective of modernisation, knowledge sharing, innovation, and digitalisation[9]. In CAP Strategic Plans (2023-2027), Member States show their **AKIS strategic approach**[10], which will contribute to the achievement of the CCO by providing a description of the organisational set-up of AKIS and a description of how advisory services, research and the national CAP Networks will cooperate to provide advice, knowledge flows and innovation services[11].

The overarching aim of the CAP modernisation, where AKIS plays a significant role, is the long-term supply of nutritious food and biomass and the achievement of the 2030 Sustainable Development Goals[12]. To this end, knowledge and innovation (including tackling the research and digital divides) through a well-functioning AKIS in Member States will play a key role.

The AKIS strategic approach is translated into practice through the use of three types of interventions and the combination of these types of interventions, which contributes to the well-functioning of AKIS. These are (as also presented in Table 1 and Figure 1):

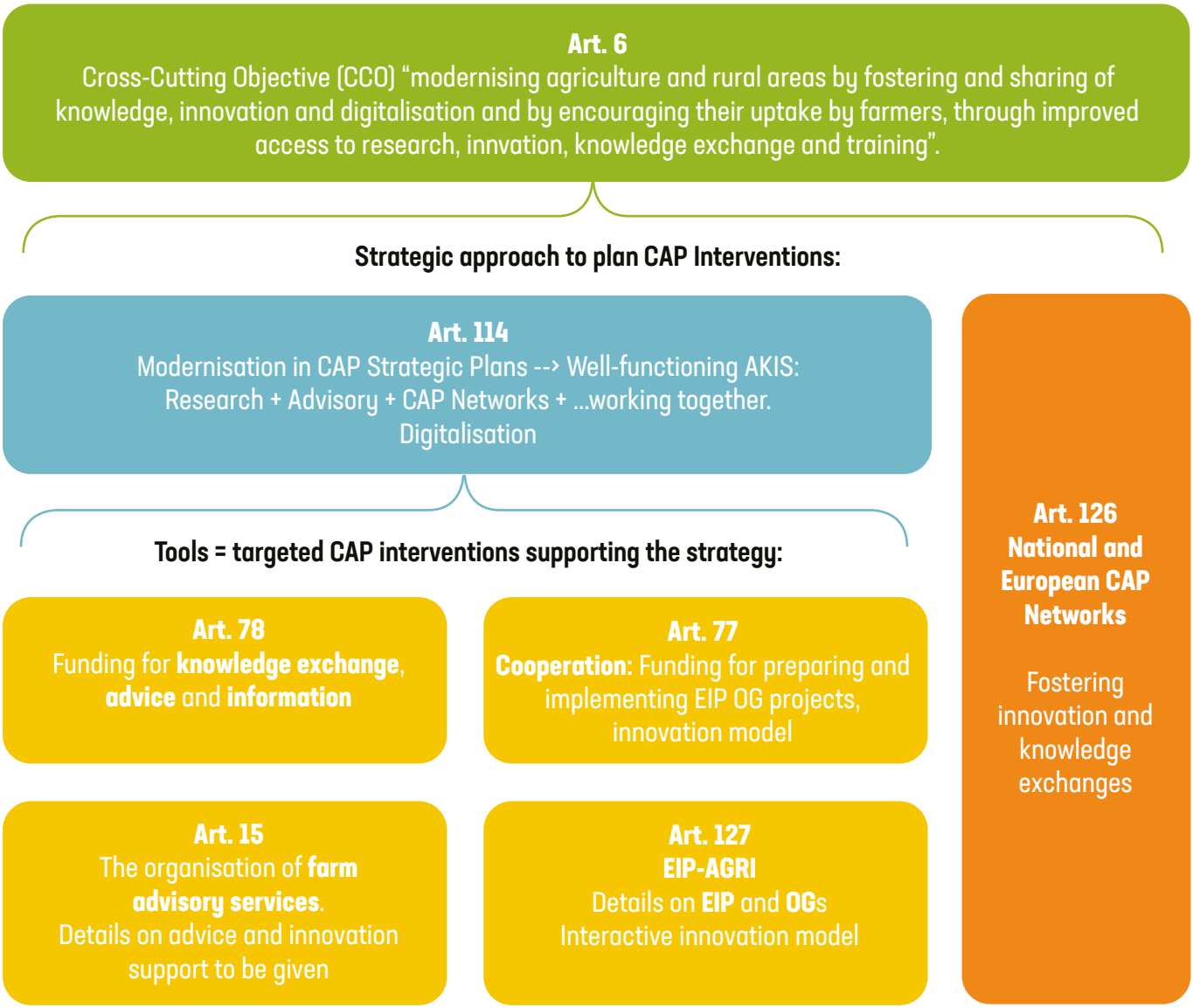
- Knowledge exchange and dissemination of information[13];
- Farm advisory services[14];
- Operational Groups' (OG) innovation projects under the EIP[15].

Additionally, digitalisation helps to further improve knowledge flows by providing innovative solutions in terms of collection (e.g. knowledge reservoirs), management (e.g. advisory tools) and sharing of knowledge.

The CAP Networks' activities fostering innovation and knowledge exchange also support all the above mentioned interventions [16].

[7]Article 3 (9) of Regulation (EU) No 2021/2115.
[8]European Commission (2021): Tool 8.1. Tool for the CAP CCO: modernisation, AKIS, digital strategy
[9]Article 6 (2) of Regulation (EU) No 2021/2115.
[10]Recital 85 of Regulation (EU) No 2021/2115 and Sections 8.1 and 8.2 of the CAP SP according to Article 114 of the Regulation (EU) No 2021/2115.
[11]Article 114 of Regulation (EU) No 2021/2115.
[12]European Commission SCAR AKIS (2019): Preparing for future AKIS in Europe. Brussels. (Comment: 4th Report of the DG Agri / Standing Committee on Agricultural Research (SCAR)); Notably, the 2nd Sustainable Development Goal (SDG) to end hunger, achieve food security and improved nutrition and promote sustainable agriculture.
[13]Article 78 of Regulation (EU) No 2021/2115.
[14]Article 15 of Regulation (EU) No 2021/2115.
[15]Article 77 (1) (a) of Regulation (EU) No 2021/2115.
[16]Article 126 (3) (e) of Regulation (EU) No 2021/2115.

Figure 1. Overview of most relevant CCO provisions for knowledge and innovation (AKIS)



Source: Adapted from EC (2021): Tool 8.1. Tool for the CAP CCO: modernisation, AKIS, digital strategy. Articles in the figure refer to Regulation (EU) No 2021/2115.

The combination of the above types of interventions should be well-suited to national circumstances to allow increasing systemic interplays between researchers and other experts[17], practical/applied knowledge (advisors) and practice (farmers, foresters and their organisations) as well as creating an enabling environment for all the actors to meet and collaborate on a regular basis around practical needs and innovative solutions. Accordingly, **assessing the well-functioning of AKIS's strategic approach means judging on the merit of the effective implementation and interplay among all types of AKIS-related interventions**.

In addition to the AKIS-related interventions, knowledge sharing and innovation may also be supported by certain types of interventions in certain sectors[18] (such as productive and non-productive investments, research and experimental production, advisory services and technical assistance, training and coaching, exchange of best practices), which contribute to the CCO and SOs on a sector by sector basis.

Overall, the post-2020 CAP, which supports better AKIS strategic approaches in Member States, is expected to result in **EU added value and more cross-border spill-overs of knowledge and innovation**[19]. Table 1 provides an overview of the content of AKIS-related CAP interventions and how these may contribute to a well-functioning AKIS.

[17]Not all CAP OGs need researchers. Other expertise may be more useful.
[18]Article 47 of Regulation (EU) No 2021/2115.
[19]European Commission SCAR AKIS (2019): Preparing for future AKIS in Europe. Brussels. (Comment: 4th Report of the DG Agri / Standing Committee on Agricultural Research (SCAR)).

Table 1. AKIS-related interventions and their content

AKIS-related interventions	Content of relevance to AKIS	Contribution to a well-functioning AKIS
Knowledge exchange and dissemination of information	This type of intervention supports actions related to knowledge exchange and dissemination of information, actions to promote innovation, training and advice and other forms of knowledge exchange and dissemination of information, as well as the setting-up of advisory services. Actions supported under this type of intervention should be based on, and be consistent with, the description of the AKIS strategic approach provided in their CAP SP in accordance with Article 114 (a) of Regulation (EU) No 2021/2115.	Strengthening **knowledge flows and links between research and other experts and practice**
Farm advisory services	Farm advisory services shall be integrated within the interrelated services of farm advisors, researchers, farmer organisations and other relevant stakeholders that form AKIS.	Fostering **all farm advisors' competences and knowledge** and strengthen their **interconnections** within the **AKIS**
Cooperation for EIP OG innovation projects	The EIP is supporting AKIS by connecting policies and instruments to speed up innovation. EIP OGs under the cooperation type of intervention will develop and implement innovative projects based on the interactive innovation model[20], including: the development of innovative solutions, bringing together partners with complementary knowledge such as farmers, advisors, researchers, enterprises or NGOs. There is also an element of co-decision and co-creation, which is key for innovation and its take-up.	Enhancing cross-thematic and cross-border **interactive innovation**
Digitalisation in agriculture and rural areas	Farm advisory services shall cover, amongst other things, digital technologies in agriculture and rural areas as referred to in Article 114 (b) of Regulation (EU) No 2021/2115. A CAP SP shall include a description of the strategy for digital technologies in agriculture and rural areas, contributing to the modernisation objective of the CAP, thus complementing the AKIS contribution to modernisation.	Making effective use of **information and communication technologies** to improve knowledge sharing

[20]Article 127 (3) of Regulation (EU) No 2021/2115.

1.3 AKIS and EIP

The three building blocks of the EIP (see Annex 3 for its description) will support the implementation of Member States' AKIS strategic approach and the achievement of the CAP CCO and SOs, particularly by[21]:

- The OGs: The OGs connect innovation actors in projects by helping to find the research needs of (farming) practice, promoting faster and wider transposition of innovative solutions into practice and building better links between research or other expertise[22] and practice. As multi-actor and interactive innovation projects involve a targeted mix of actors, according to the project objectives, they play a role in bringing together AKIS actors with complementary knowledge (farmers, advisors, researchers, enterprises or NGOs) in interactive innovation projects that are targeted to tackle concrete problems/opportunities across supply chains and rural areas. As multi-actor partnerships, they bring together actors from different sectors and EU areas, they contribute to the production of cross-thematic and cross-border interactive innovations. By involving advisors, they contribute to fostering their knowledge and strengthening interconnections within AKIS.
- CAP Networks: The networks will acquire a new role in the CAP, notably by developing a stronger 'innovation strand' to foster innovation and knowledge exchange and facilitating the networking of EIP OGs. They will therefore contribute to strengthening knowledge flows and linkages within AKIS.
- Horizon Europe multi-actor projects (including thematic networks): Since 2014, multi-actor projects have produced plenty of material ready to be used for practice or training/education. Thematic networks synthesise and present best practices and research results with a focus on themes and issues that are close to being put into practice, but not yet known by practitioners. Since 2021, an additional Horizon Europe topic are thematic networks, which will have to be built by a number of OGs working on a common theme. This will also help the establishment of cross-border OGs, after working together on a common theme in such a Horizon Europe project. And even more importantly, cross-border OGs may lead to such Horizon Europe thematic networks built by OGs, possibly incentivised by a few meetings organised by CAP Networks[23].

2. The evaluation phases: An overview

Evaluations are usually organised in six phases[24], starting from the 'Planning' phase, where the financial and human resources required for the evaluation are decided, based on the needs and capacity of the Managing Authority. This phase also identifies the AKIS actors to be engaged and establishes the coordination arrangements (potentially through an evaluation steering or advisory group) and quality control standards and procedures. In addition, in this phase, a communication and dissemination plan may be developed to maximise the effective use of evaluation results.

The 'Preparation' phase establishes the overall strategy and framework for a successful evaluation and includes an effective engagement of relevant AKIS actors to identify the scope and objectives of the evaluation. This, in turn, will help define the evaluation framework, including evaluation questions and key factors of success and relevant indicators.

The 'Structuring' phase establishes the overall evaluation approach and identifies relevant and adequate methods and tools (i.e. in line with the resources available and the scope of the evaluation). This phase also checks data availability and identifies further data and information collection needs.

In the 'Observing' phase, the evaluator applies the selected methods to collect relevant information and data for further analysis and designs tools for the observation of evidence and collection of data/information. This is also where information needed to bridge any identified data gaps is gathered.

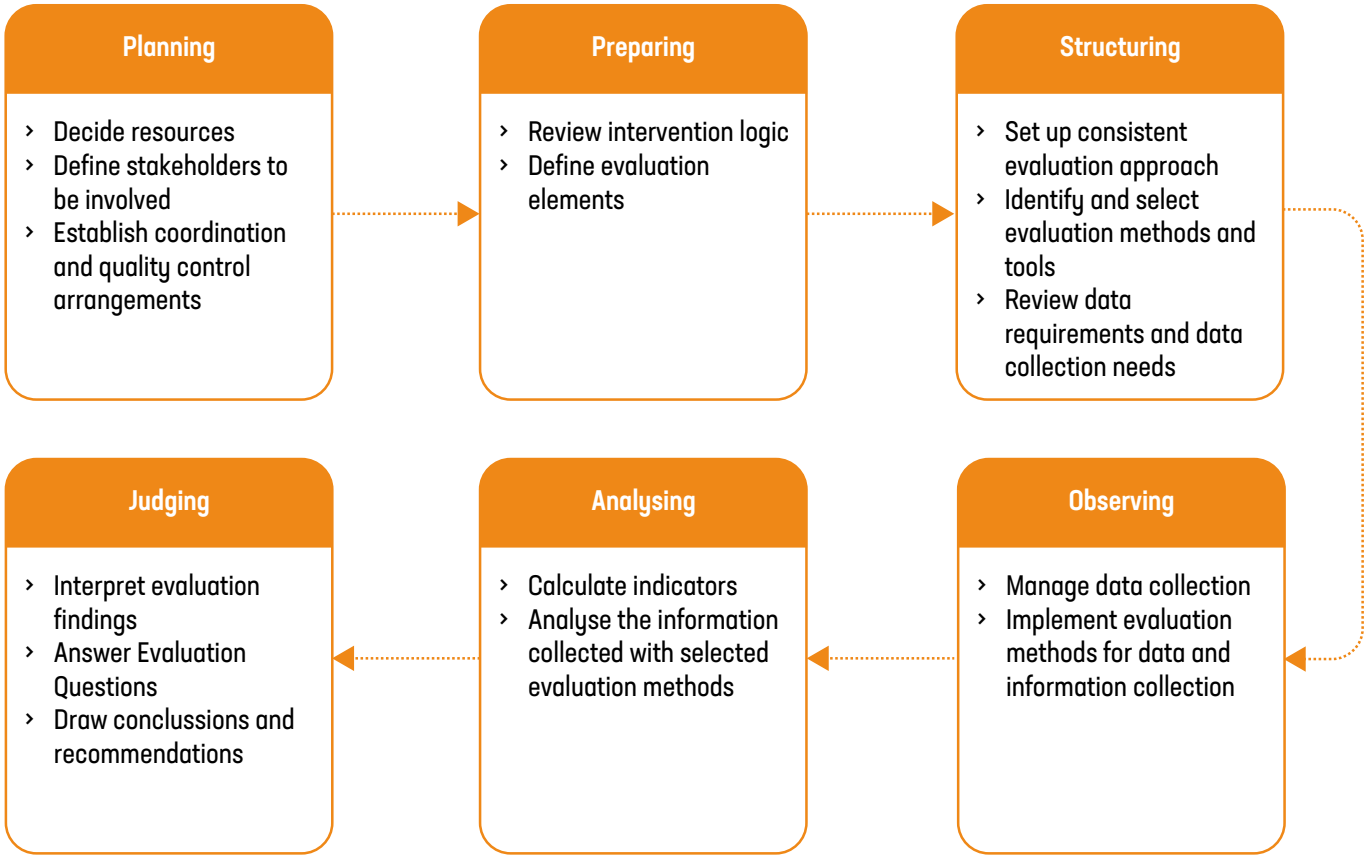
The 'Analysing' phase refers to the systematic work of data mining and information processing, synthesis and triangulation of evidence collected during the 'Observing' phase, in view of assessing the key factors of success and answering the evaluation questions. This ultimately leads to the assessment of the performance, effects and impacts of the AKIS strategic approach with respect to the CCO and other SOs of the CAP Strategic Plan.

The 'Judging' phase concerns the interpretation of evaluation findings and the formulation of conclusions and recommendations for improving the AKIS strategic approach and its implementation in the context of the CAP Strategic Plan. This phase can be concluded with the communication and dissemination of evaluation results as well as the design of a follow-up plan for the recommendations.

Annex 4 offers a more detailed list of the recommended working steps for each of these evaluation phases.

[21] Article 177 of Regulation (EU) No 2021/2115.
[22] For example, experts in short supply chains will mostly not be researchers.
[23] Article 126 (4) (e) of Regulation (EU) No 2021/2115.
[24] For a more detailed description of the evaluation phases applied in CAP evaluations, see the 'Assessment of RDP Results: How to Prepare for Reporting on Evaluation in 2017' guidelines.

Figure 2. Key content of the evaluation phases



Source: European Evaluation Helpdesk for the CAP (2023)

3. Planning and preparing phases

This chapter outlines the main content of the 'Planning' and 'Preparing' phases for the evaluation of the AKIS strategic approach. It starts from the relevant legal requirements to highlight what needs to be evaluated in relation to AKIS in CAP Strategic Plans. It then describes the objectives for evaluating AKIS's strategic approach and proposes key steps for planning and preparing the evaluation as well as key elements to assess. Finally, it offers an overview of potential challenges for evaluating AKIS in the context of CAP Strategic Plans.

3.1 Legal requirements for the evaluation of AKIS

The legal requirements for the AKIS evaluation concern the obligation to assess Member States' CAP Strategic Plans during their implementation, with a view to improving the quality of their design and implementation as well as ex post.

As stated in Article 140 of Regulation (EU) 2021/2115: "Member States shall assess their CAP Strategic Plans' effectiveness, efficiency, relevance, coherence, Union added value and impact in relation to their contribution to achieving the CAP general objectives set out in Article 5 and those specific objectives set out in Article 6 (1) and (2) which are addressed by the CAP Strategic Plan concerned. The CAP Strategic Plan's overall impact shall be assessed by the ex-post evaluation only".

In line with Article 2 (d) of Implementing Regulation (EU) 2022/1475: "Member States shall assess their CAP Strategic Plans using the relevant evaluation criteria and assess the impacts of their CAP Strategic Plans taking into account the scope, the type and the uptake of the CAP Strategic Plan's interventions".

Furthermore, as stated in the Article 2 (d) of Implementing Regulation (EU) 2022/1475:"Where relevant, based on Member States' evaluation needs and taking into account the CAP Strategic Plan's intervention logic and implementation, Member States shall assess also specific interventions or topics of the CAP Strategic Plans, such as the Agricultural Knowledge and Innovation System (AKIS)".

The AKIS strategic approach, which is a key novelty in the CAP for the 2023-2027 period, in line with Article 114 (a) of Regulation (EU) 2021/2115, is one of the cornerstones of the CCO aiming at: "modernising agriculture and rural areas by fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas and by encouraging their uptake by farmers, through improved access to research, innovation, knowledge exchange and

training" and legal requirements stem from those applicable to the evaluation of this CCO.

A key point of reference for the evaluation of the AKIS strategic approach is the SWOT analysis that, according to Article 115 (2) of Regulation (EU) 2021/2115: "For the cross-cutting objective set out in Article 6 (2), the SWOT analysis shall also provide relevant information about the functioning of the AKIS and related structures".

Annex 1 of Implementing Regulation (EU) 2022/1475 considers AKIS as one of the key elements to be considered when evaluating the effectiveness of the CCO. Notably, Member States are expected to assess the AKIS-related interventions and their impact on innovation uptake by farmers, based on the support to AKIS strategic actions. The Implementing Regulation also recommends a number of factors of success for assessing the AKIS. These are:

- An increasing number of farmers participate in training programmes and/or make use of farm advice.
- Farmers change farming practices after participating in training programmes and/or making use of farm advice.
- CAP Strategic Plan expenditure supporting the creation of innovation and knowledge sharing is increasing.

As these are recommended factors of success, they can be adapted according to the evaluation needs of Member States. These guidelines propose an evaluation framework that includes a longer list of factors of success as well as possible indicators (in addition to the common ones) for assessing various elements related to the AKIS in the context of CAP Strategic Plans. Member States may choose from these ones depending on the intervention logic of the CCO in their CAP Strategic Plans and their evaluation needs.

In terms of timing of evaluations, the AKIS strategic approach (as well as all other evaluations of CAP Strategic Plans) needs to be evaluated during the 2023-2029[25] implementation period and ex post[26]. In principle, based on the general intervention logic of the AKIS within the CAP Strategic Plans, the recommendation is to conduct the evaluation of the AKIS strategic approach on an ongoing basis to capture different aspects of its overall design, implementation and contribution to the CCO and SOs of the CAP SPs.

3.2 The objectives of the evaluation of Member States' AKIS strategic approach

Overall, the evaluation of the AKIS strategic approach aims to improve the quality of the design and implementation of CAP Strategic Plans.

The **objective of the evaluation is the assessment of the AKIS strategic approach** reflected in the choice of AKIS-related interventions and their combination included within the CAP Strategic Plan, namely:

- **Its contribution to achieve the CCO relating to the modernisation of agriculture and rural areas, and to achieve other relevant SOs addressed by the CAP Strategic Plan concerned** (this is the primary objective of the evaluation of the AKIS strategic approach).

If Member States consider it relevant, they can broaden the objectives of the AKIS evaluation to assess how all AKIS-related CAP interventions, which are more than those programmed under the CCO, contribute to a well-functioning and better integrated AKIS, in the context of the Member State concerned.

- **The contribution of AKIS-related CAP interventions (which are more than those under/in the CCO) to a well-functioning and better integrated AKIS in the context of the Member State concerned** (this is the secondary objective of the AKIS evaluation).

Further articulation of the objectives of AKIS evaluation should take into account that Member States shall plan the evaluations of the SO / CCO in accordance with the CAP SP intervention logic, according to Article 2 (a) of Implementing Regulation (EU) 2022/1475. This implies that the objectives of the evaluation of the AKIS strategic approach in each Member State should be tailored to the specificities of its CAP Strategic Plan's intervention logic and the AKIS on the ground.

Furthermore, the AKIS evaluation should help:

- Member States develop capacities for a comprehensive understanding of their AKIS;
- Member States acquire knowledge in order to better target CAP interventions towards supporting their AKIS and its well-functioning, while contributing to the achievement of the policy objectives;
- Member States gradually build AKIS evaluation capacities, including tools and procedures for diagnosis and evaluation, to apply to selected AKIS fields as needed;
- the European Commission to carry out evaluations at EU level[27].

[25] Article 2 of Regulation (EU) No 2022/1475.
[26] Article 3 of Regulation (EU) No 2022/1475.
[27] Article 141 of Regulation (EU) No 2021/2115.

3.3 The key steps for planning and preparing the evaluation of the AKIS strategic approach

In line with the primary objective, the overarching evaluation question is:

> To what extent does the AKIS strategic approach in the context of the CAP SP contribute to the achievement of the CCO of modernisation and to the achievement of other relevant SOs addressed in the CAP SP concerned?

The following steps for planning and preparing the evaluation are proposed:

1. Review the intervention logic of the AKIS-related interventions under the CCO and define key elements to assess them[28]. With regard to the impact assessment on modernisation (made in preparation of the CAP Commission Proposal)[29], four operational objectives were formulated by the Commission and have been used as a basis for structuring the design of CAP SPs:

- Knowledge flows and strengthening links between research and practice;
- Strengthening farm advice and fostering all advisors' interconnection within AKIS;
- Interactive innovation projects and Innovation Support Services (ISS);
- Digitalisation in agriculture and rural areas, notably making effective use of information and communication technologies to improve knowledge sharing.

This articulation can be the basis for structuring the evaluation of the contribution of AKIS to the CCO. For the contribution of AKIS-related interventions with regard to the other nine SOs, the general intervention logic of each SO should be used as reference while taking into account the specificities of Member States.

2. Identify relevant evaluation criteria assessing the AKIS strategic approach: the evaluation of the AKIS strategic approach encompasses each AKIS intervention programmed under the CCO as well as their combination, taking into account the evaluation criteria of relevance, effectiveness, efficiency, coherence, added value and impact. The last two are pertinent for ex post evaluations[30].

In line with the secondary objective for evaluating AKIS, the overarching evaluation question here would be:

> To what extent do AKIS-related CAP interventions (beyond those programmed under the CCO) contribute to a well-functioning and better integrated AKIS in the context of the Member State concerned?

The following steps for planning and preparing the evaluation are proposed in this exercise:

1. Screening of CAP interventions under the different Specific Objectives to identify which ones are related to the AKIS, according to the specific intervention logic of a CAP SP. For instance, CAP Networks can promote networking, SME funding can contribute to innovation, the young farmer interventions can be used to increase the ability of young farmers to adapt to change and can be used for intergenerational knowledge transfer, etc.

2. Review of the AKIS in the Member State concerned in terms of actors, infrastructures, interactions and their characteristics. The existing mapping carried out in the context of EU projects (PRO AKIS[31], i2connect[32], modernAKIS[33], etc.) could be used as a starting point. However, the SWOT analysis of the 2023-2027 CAP Strategic Plans also provides a lot of information.

3. Analysis of how the identified AKIS-related interventions contribute to improve the functioning of the AKIS in terms of improved interactions and knowledge flows. Elements to analyse include the types and degrees of interactions among AKIS actors (e.g. organisational structures connecting actors on a regular basis for information exchanges; new and more interactive relationships between actors; new and improved/strengthened knowledge flow patterns, such as the number of advisors being involved in training and number of educators/trainers/students being involved in EIP OG projects; bottlenecks; how resources are divided between actors), the development, use and dissemination of knowledge (e.g. the level of commitment of different actors within the AKIS to cooperate in order to co-create innovations and what kind of resources they have/use for this), the degree of networking (e.g. role of CAP Networks for knowledge exchange and innovation, number of individual grassroots innovative ideas captured by Innovation Support Services and the number of those who effectively became OG project proposals, the number of such projects eventually selected and the type of activities of Innovation Support Services leading to EIP OG projects).

4. Analysis of how the identified AKIS-related interventions contribute to pathways of change and innovation. Elements to analyse include the number of OG projects supported, the frequency of OG calls, the budget reserved for such calls, the degree of integration of advisors in OG projects, the innovation processes developed by OGs, the capacity to innovate of farmers, groups of farmers, rural organisations and networks or the capacity to collaborate and to network.

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[28] Article 1(2) of Commission Implementation Regulation (EU) No 2022/1475.
[29] Annex 6 'Promoting modernisation' to the Part 3/3 of the 'Impact assessment' Commission Staff Working Document: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2018:301:FIN
[30] Article 140(1) of Regulation (EU) No 2021/2115.
[31] FP7 project PRO AKIS - Prospects for Farmers' Support: Advisory Services in European AKIS Coordinator: ZALF, Germany (2013-2014).
[32] Horizon 2020 project i2connect – Connecting advisors to boost interactive innovation in agriculture & forestry. APCA, France (2019-2024).
[33] Horizon 2020 project modernAKIS - Modernisation of Agriculture through more efficient and effective Agricultural Knowledge and Innovation Systems. LFI, Austria (2022-2029).

3.4 The key elements to assess AKIS's strategic approach

According to the Implementing Regulation, the key element to assess in relation to the CCO is: "based on the support to AKIS strategic actions, the AKIS related interventions, and the digital strategy and their impact on innovation uptake by farmers"[34] . The following table provides an analysis of this statement, disaggregating it into several elements to assess the AKIS strategic approach.

Table 2. Key elements to assess the contribution of the AKIS strategic approach to the achievement of the Cross-Cutting Objective relating to the modernisation of agriculture and rural areas

Key elements to assess, if relevant for the Member States concerned	Evaluation Criteria	When
1. **Design elements of the AKIS strategic approach** › The CAP SP budget devoted to AKIS-related interventions (supporting the creation of innovation and knowledge sharing). › The strategic approach of AKIS-related interventions (their choice and combination) aiming at increased interactions within AKIS.	Relevance Effectiveness	Ex ante Ongoing Ex post
2. **Implementation arrangements related to the AKIS strategic approach** › Efficiency of implementation arrangements, including the AKIS coordination body. › Consistency of the eligibility conditions and selection criteria[35] with the policy objective/goal of AKIS-related interventions. › Implementation arrangements that enable farmers, advisors and other AKIS actors to effectively take part in knowledge flows and interactive innovation, through effective promotion and increasing attractiveness for participation in the various interventions. › Simplification for beneficiaries and for administrations. › Simplification of administrative burden for the provision of advice and training (e.g. call procedures, use of SCO).	Coherence Efficiency	Ongoing Ex post
3. **Knowledge flows and strengthening links between research and practice** **Knowledge flows:** › Thematic coverage of interventions against CAP topics and specific needs of Member States (e.g. knowledge flows regarding agricultural and forestry topics, non-agricultural topics). › Wider use of knowledge exchange models and tools (e.g. AKIS platforms, knowledge reservoirs). › The role of the CAP Network in supporting peer-to-peer learning as well as supporting the inclusion and the interaction of all AKIS actors in the knowledge-exchange and knowledge-building process. › The intensity and variety of interactions of the AKIS actors taking into account the variety of actors involved. **Strengthening links between research/expertise and practice:** › Wider use of collaboration models of farmers with experts, researchers and advisors. › Well-functioning Innovation Support Services co-creating useful innovation from ideas on the ground. › Main collaboration pathways/organisation/structuring that make experts/researchers, advisors and CAP Networks work better and more regularly together to exchange and share knowledge, co-create innovation and build common projects (e.g. thematic knowledge hubs, cooperation in preparing demonstration events, knowledge exchange events, innovation projects). › Increased participation of 'hard to reach' farmers in the knowledge flows that they need.	Coherence Effectiveness	Ongoing Ex post

[34]Annex 1 of Commission Implementing Regulation (EU) No 2022/1475.
[35]Selection criteria are possibly more important and quite often not well chosen for the purpose of the intervention. Also their relative weight is important = criteria with not enough weight is a classical problem.

4. Strengthening farm advice and fostering all advisors' interconnection within AKIS › Strengthened use of vocational training and peer-to-peer learning paths for advisors and farmers (e.g. use of demonstration farms working in genuine production conditions). › Quality of the training received, as assessed by the advisors (content and scope, methods used, frequency, timing etc). › Strengthened use of (impartial) advisors (e.g. availability of a list of impartial advisors on a public website, indicating their expertise and specialisation). › Access to impartial advice on a broader range of topics, using a variety of methods and tools as foreseen in Regulation (EU) 2021/2115 and as visible in the design and implementation of interventions. › Use of methods for assessing the demand for farm advice (i.e. the assessment of the needs of farmers for specific types of advice, as well as whether sufficient overall advice is available). › Quality and relevance of the advice received as assessed by the persons benefitting from it. › Scope of advice given linked to EU objectives (e.g. which CAP objectives, which Green Deal objectives are covered). › Intensity and frequency of advice received (e.g. every time the farmers need it or restricted to a limited number of occasions, length of an average advisory session: too long or too short). › Collaborative networks of advisors within the AKIS. › Collaboration specifically between public and private advisors (e.g. common training and common activities, sharing of information after a training mission abroad). › The role of the CAP Network in supporting the inclusion and the interaction of the advisors within the AKIS. › The role of the advisors in supporting the inclusion of CAP Networks in practice-oriented events.[36]	Effectiveness	Ongoing Ex post

5. Innovations and Innovation Support Services (ISS)
› Implementing models of EIP-Agri within the CAP SP to foster bottom-up approaches and to capture grassroots innovative ideas[37].
› EIP OG projects, their characteristics and effects, specifically:
  › thematic and geographical coverage;
  › methods to ensure the real implementation of a multi-actor approach and interactive innovation model; choice of relevant partners; sufficient budgets;
  › degree of participation of farmers, advisors, ISS and other practitioners in OGs and Horizon Europe multi-actor projects;
  › possible linkages with Horizon Europe multi-actor projects and CAP Networks; capacity to develop long-term collaboration.
› Innovation Support Services and their functioning[38] to support innovations (including typologies of actors in ISSs, activities along the different stages of innovation processes[39]).
› Promotion of more practice-oriented, innovation-driven research approaches.
› Active engagement of farmers in OGs.
	Coherence
	Effectiveness
	Impact
	Added Value
		Ongoing
		Ex post

[36]Some CAP Networks are far away from practice and advisors can suggest involving CAP Networks in the organisation of practical events, which will help CAP Networks to get closer to practice.
[37]Some MS do not allow farmers' ideas to flourish, they impose a researcher in each OG, which often hinders spontaneity and focus on practical outcomes.
[38]Some ISS are stand alone, others are linked to specific innovation/research institutes, others are part of applied research stations, some are linked to farmers' organisations or producers' cooperatives etc.
[39]e.g. some Member States have several meetings per year with the main innovation broker from each region.

6. Digitalisation, focusing on making effective use of information and communication technologies to improve knowledge sharing › Development of tailored / ready-to-put-in-practice innovative digital technologies and tools at farm and system level (e.g. digital knowledge reservoirs, decision tools, apps for dissemination purposes) enhancing knowledge flows. › Development of skills and competences in digital technologies (or efforts addressing the lack of such skills).	Effectiveness	Ongoing Ex post
7. Complementarities › Linkages of AKIS interventions with other CAP Strategic Plan interventions and with other national / EU plans / programmes.	External coherence Internal coherence	Ex ante Ongoing Ex post

The AKIS strategic approach may also contribute to the achievement of other relevant Specific Objectives, depending on the intervention logic of the CAP Strategic Plan. The key elements to assess for the other nine Specific Objectives (as per Annex I of Regulation (EU) No 2022/1475) may therefore be used where relevant to evaluate the AKIS strategic approach.

The following table lists the key elements to assess in cases where the AKIS strategic approach is expected to contribute to other SOs as well.

Table 3. Key elements to assess when the AKIS strategic approach also contributes to other Specific Objectives

CAP Objectives	Key elements to assess, if relevant for Member States	Evaluation Criteria	When
SO1: To support viable farm income and resilience of the agricultural sector across the European Union in order to enhance long-term food security and agricultural diversity as well as to ensure the economic sustainability of agricultural production in the EU	› Viable farm income, by including stable income and also fairly distributed income. › Resilience: Encompasses supporting farmers facing potential risks and specific limitations which can force them to stop agricultural activity.	Effectiveness	Ongoing Ex post
SO2: To enhance market orientation and increase farm competitiveness both in the short and long term, including greater focus on research, technology and digitalisation	› Enhanced market orientation: Based on agri-food trade balance (import-export). › Farm competitiveness: Based on increased capital, labour and land productivity through innovation.	Effectiveness	Ongoing Ex post
SO3: To improve the farmers' position in the value chain	› Farmer's position in the value (food and non-food) chain: Integration of farmers within the food chain and participating in quality schemes and organic production to increase added value.	Effectiveness	Ongoing Ex post
SO4: To contribute to climate change mitigation and adaptation, including by reducing greenhouse gas emissions and enhancing carbon sequestration, as well as promote sustainable energy	› Climate change mitigation: Based on greenhouse gas emissions (GHG) and carbon sequestration.	Effectiveness	Ongoing Ex post

SO5: To foster sustainable development and efficient management of natural resources such as water, soil and air, including by reducing chemical dependency	› Efficient management of natural resources: Based on preserving or enhancing natural resources quality and quantity by reducing pollutants and exploitation.	Effectiveness	Ongoing Ex post
SO6: To contribute to halting and reversing biodiversity loss, enhance ecosystem services and preserve habitats and landscapes	› Reversing biodiversity loss: Based on biodiversity and habitats in agricultural land or other areas affected by agricultural or forestry practices. › Ecosystem services: Based on landscape features that contribute to ecosystem services by hosting relevant species (e.g. through pollination, pest control), by biophysical processes (e.g. through erosion control, water quality maintenance), or by cultural values (e.g. aesthetic value).	Effectiveness	Ongoing Ex post
SO7: To attract and sustain young farmers and other new farmers and facilitate sustainable business development in rural areas	› Farmers' renewal: Based on supporting young farmers and new farmers setting up and continuity. › Business development: Based on supporting rural business start-ups and farm diversification.	Effectiveness	Ongoing Ex post
SO8: To promote employment, growth, gender equality, including the participation of women in farming, social inclusion and local development in rural areas, including circular bio-economy and sustainable forestry	› Rural sustainable economy: Based on economic growth and promoting employment. › Local development: Provision of local services and infrastructure. › Gender equality and social inclusion: Promotion of participation of women in farming and the economy, income equity and poverty reduction.	Effectiveness	Ongoing Ex post
SO9: To improve the response of European Union agriculture to societal demands on food and health, including high quality, safe and nutritious food produced in a sustainable way, the reduction of food waste, as well as improving animal welfare and combatting antimicrobial resistance	› Quality and safety food: Based on fostering quality schemes, promoting animal welfare and combatting antimicrobial resistance.	Effectiveness	Ongoing Ex post

Source: Annex I of Implementing Regulation (EU) 2022/1475

3.5 Challenges in evaluating the AKIS strategic approach

Although AKIS has always existed in practice in Member States, the awareness of the AKIS strategic approach concept is completely new in the context of CAP Strategic Plans. This implies a lack of targeted and comprehensive frameworks to use for the purpose of its evaluation. Thus, evaluating AKIS entails some challenges:

1. Data and information needed for the evaluation of the AKIS strategic approach may not be readily available since AKIS was not part of Rural Development Programme evaluations in the past. Of course, CAP rural development support for training, use of advice and EIP OG projects existed in the 2014-2022 period, but they existed without looking for the combined effect and the added value of interaction and knowledge flows between these measures, let alone the synergies with Horizon projects under the EU research framework. Therefore, data and information needs should be identified in advance and appropriate steps taken to collect the data and information required on an ongoing basis.
2. Evaluation experience of the AKIS strategic approach may be scarce as AKIS was not subject to evaluation in the previous CAP (2014-2020). Therefore, experience can be drawn from past evaluations of innovation, advisory services and knowledge exchange, in terms of methodological approaches and evaluation skills. Furthermore, to build evaluation experience, Member States can be inspired by the work done on assessing Agricultural Innovation Systems (AIS) by international organisations such as the Food and Agriculture Organisation (FAO).

3. Data for many of the additional (non-PMEF) indicators proposed in these guidelines is not systematically collected by Member States. Therefore, making comparisons in order to learn from each other's experiences and performance may not be possible. This could be overcome if public authorities collected and used at least 2-3 of the indicators proposed here per intervention. Such a harmonised first step to evaluating AKIS spending for the 2023-2027 period would allow some systematic comparisons and provide good recommendations for the next programming period.

4. Structuring phase

The 'Structuring' phase focuses on the evaluation framework and proposals for evaluation methods and tools. The final selection of methods and tools is important for both the 'Observing' and 'Analysing' phases, as methods and tools for data and information collection are relevant to the former while methods for analysing the information collected are relevant to the latter.

The 'Structuring' phase involves the following key steps:

1. Develop evaluation questions and factors of success that will support the assessment of the relevant evaluation criteria[40]. In addition, evaluation questions and factors of success other than those set out in in the legal framework[41] or any other relevant quantitative and qualitative information can be developed for a more comprehensive assessment of the AKIS strategic approach, in accordance with the Member State needs and context[42].
2. Identify indicators (relevant output, result and impact indicators) to measure each factor of success. These may include the PMEF indicators as well as other specific indicators that can facilitate the answers to evaluation questions.
3. For the selected indicators, identify data sources and other sources of quantitative and qualitative information.
4. Identify and select relevant methods (and their combination) for carrying out the evaluation. The main criteria to identify relevant methods may include:
   - the selected indicators and the data required for them, including the data and information sources necessary for calculating the indicators and answering the evaluation questions;
   - the evaluation phase for which a method is needed, for instance there are methods useful for the 'Observing' phase (e.g. methods to conduct fieldwork and collect data and information) and methods useful for the 'Analysing' phase (e.g. to analyse the data and information collected);
   - the resources available for applying a method, including financial (some methods entail higher costs than others), human (some methods required certain expertise) and technical (some methods require certain IT tools) resources;
   - the applicability of a given method in the context of the overall theory of change approach.
5. Review data requirements for the chosen methods and, if needed, propose adjustments to the monitoring system.
6. Set up arrangements for the timely provision of required data.

The outcome of these steps can be an evaluation framework for the evaluation of the AKIS strategic approach. The following tables (Tables 4 and 5) offer a recommended evaluation framework for the AKIS strategic approach, taking into account:

- The key evaluation elements and recommended factors of success to assess effectiveness as defined in Annex I to the Implementing Regulation (EU) 2022/1475.
- The proposed objectives of the evaluation of the AKIS strategic approach, and particularly the primary objective 'to assess the contribution of the AKIS strategic approach to the achievement of the CCO relating to the modernisation of agriculture and rural areas'.

More specifically, the proposed evaluation framework in these guidelines includes:

- Indicative evaluation questions and factors of success that reflect the specificity of the AKIS strategic approach;
- Possible indicators that can help quantify the assessment. These include relevant PMEF indicators set out in Annex I to Regulation (EU) 2021/2115 as well as recommended specific indicators, in addition to those set out in Annex I, which can support a more comprehensive assessment of AKIS where relevant and in accordance with the Member State needs and context. Quantitative indicators need to be assessed in comparison to a baseline (if there is one), or their evolution over time (from the beginning of implementation of the relevant interventions) or in relation to a target. Member States can choose from the list of possible indicators, those more relevant to their evaluation needs and context, while also depending on the availability of data for their calculation.
- Recommended methods and tools for evaluation, which are described in more detail in the following chapter.

4.1 The proposed evaluation framework

The following tables present the proposed evaluation framework for a) assessing the contribution of the AKIS strategic approach to the achievement of the CCO (Table 4) and b) assessing the contribution of the AKIS strategic approach to other relevant SOs addressed by the CAP Strategic Plan concerned (Table 5). In terms of evaluation questions, factors of success, indicators and methods, the content of these tables are only proposals and Member States can use or adapt them as relevant to their context and evaluation needs.

[40] Article 1(1) of Implementing Regulation (EU) No 2022/1475.
[41] Annex I to Regulation (EU) No 2021/2115 and Annex I to Commission Implementing Regulation 2022/1475.
[42] Article 6(1) of Implementing Regulation (EU) No 2022/1475.

Table 4. Recommended evaluation framework to assess the contribution of the AKIS strategic approach to the achievement of the CCO relating to the modernisation of the agriculture and rural areas.

1. Design elements of the AKIS strategic approach:	
Recommended key elements to assess	› The CAP SP budget devoted to AKIS-related interventions (supporting creation of innovation and knowledge sharing). › The strategic approach of the AKIS-related interventions (their choice and combination) aiming at increased interactions within the AKIS.
Regulation	› Article 114 (a) (i) and (ii) of Regulation (EU) 2021/2115. Modernisation.
Recommended evaluation questions	› What is the share of the CAP SP budget devoted to knowledge sharing and innovation? › To what extent is the AKIS strategic approach relevant for contributing to the achievement of the CCO? (What are the pre-conditions, the interim results and the expected impacts of the AKIS interventions?) › To what extent does the choice of AKIS interventions reflect the SWOT and identified needs related to the CCO?
Evaluation criteria	› Relevance, Effectiveness
Recommended factors of success	› CAP Strategic Plan's expenditure supporting the creation of innovation and knowledge sharing is increasing - in comparison to the previous programming period. (Annex I to Implementation Regulation (EU) 2022/1475) › The AKIS strategic approach covers all relevant actors and describes the processes of their cooperation and exchange of knowledge (Ch. 8 of the CAP SP). › The thematic coverage/choice of AKIS interventions is well-tailored based on the SWOT analysis and the needs of farmers and foresters taking into account interrelated fields (Ch.8 of the CAP SP).
Evaluation phase	› Ex ante; Design of ongoing and ex post evaluations.
Recommended methods and tools for evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Brainstorming; Political mapping; Most Significant Change; RAAS; Visualised AKIS mapping; Knowledge mapping. › Methods for analysing: Stakeholder mapping and analysis; Social or Actor Network analysis; SWOT analysis; Rapid Appraisal of the AKIS (RAAS); Force Field Analysis; Reflexive Monitoring in Action; Visualised AKIS mapping. › Tools: Problem tree analysis; Fish bone diagram; Relational diagrams/Matrices; Net-map.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› I.1 Share of CAP budget for knowledge sharing and innovation (also compared to the previous programming period).
	› CAP Strategic Plan's expenditure supporting AKIS-related interventions.
	› CAP Strategic Plan's budget supporting AKIS-related interventions.
	› Share of beneficiaries supported by the AKIS interventions by types (e.g. advisors, researchers, farmers/foresters, NGOs, SMEs.)
	› Number of supported AKIS interventions/actions:
	  › Knowledge flows and strengthening links between research or other expertise and practice: (1) Number/range of knowledge exchange models and tools (e.g. knowledge exchange events, knowledge reservoirs/platforms) supported; (2) Number of peer-to-peer learning- knowledge-exchange and knowledge-building process in place.
	  › Strengthening farm advice and fostering all advisors' interconnection within the AKIS: (1) Number of advisors trained; (2) Number of farmers participating in vocational training offered by advisors and peer-to-peer learning paths; (3) Types of topics, methods and tools applied by advisors in supported actions; (4) Number of advisors participating in OGs.

	› Interactive innovation projects and Innovation Support Services (ISSs): (1) 0.1 Number of EIP OG projects; (2) Number of individual innovative ideas captured by ISSs, and number of those ideas leading to implemented OG innovation projects; (3) Number of ISSs set up and supported; (4) Number of persons in ISSs (measured in full-time equivalent); (4) Number of ISSs participating in OGs. › Digitalisation: (1) Number of digital innovations supporting knowledge flows realised by OGs; (2) Number of training programmes completed on digital farming technologies; (3) Types of advisory services using digital advisory tools; (4) Number of digital platforms effectively supporting practice-oriented knowledge exchange.
2. Implementation arrangements related to the AKIS strategic approach:	
Recommended key elements to assess	› Efficiency of implementation arrangements, including the AKIS coordination body. › Consistency of the eligibility conditions and selection criteria with the policy objective / goal of the AKIS-related interventions. › Implementation arrangements that enable farmers, advisors and other AKIS actors to effectively take part in knowledge flows and interactive innovation, through effective promotion and increasing attractiveness for participation in the various interventions. › Simplification for beneficiaries and for administrations. › Simplification of administrative burden for the provision of advice and training (e.g. call procedures, use of SCO).
Regulation	Article 114 (a) (i) and (ii) of Regulation (EU) 2021/2115. Modernisation.
Recommended evaluation questions	› To what extent does the AKIS coordination body support the implementation of the AKIS strategic approach? › To what extent do implementation arrangements enable relevant actors to participate effectively in AKIS-related interventions? › To what extent were simplification measures implemented in the respective interventions to lower administration costs for beneficiaries and public administration?
Evaluation criteria	Coherence, Efficiency
Recommended factors of success	› Alignment of eligibility conditions and selection criteria with the key principles of the interactive innovation model as listed in Article 127 (3) of Regulation (EU) 2021/2115 › Governance arrangements enable effective AKIS coordination and synergies with other policies/ programmes (e.g. ESIF, Horizon) as well as national level policies (e.g. research, education, food). › Administrative burden for beneficiaries participating in AKIS interventions and for administrations is low.
Evaluation phase	› During the programme and ex post evaluations.
Recommended methods and tools of evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Brainstorming; Political mapping; Visualised AKIS mapping; Knowledge mapping; Surveys. › Methods for analysing: Social or Actor Network analysis; SWOT analysis; Force Field Analysis; Reflexive Monitoring in Action; Visualised AKIS mapping; Institutional mapping and analysis; Expenditure analysis; Contribution analysis; Outcome mapping; Innovation system analysis. › Tools: Relational diagrams; Net-map; Monitoring databases; Input/output matrix.
Possible indicators (to be assessed, where relevant, in comparison to a baseline or to a target or evolution over time)	› Analysis of eligibility criteria. › Analysis of governance arrangements, including the AKIS coordination body. › Costs of participation in AKIS interventions for a) farmers/foresters, b) researchers, c) advisors, etc.

3. Knowledge flows and strengthening links between research and practice	
Recommended key elements to assess	**Knowledge flows:** › Thematic coverage of interventions against CAP topics and specific needs of Member States (e.g. knowledge flows regarding agricultural and forestry topics, non-agricultural topics). › Wider use of knowledge exchange models and tools (e.g. AKIS platforms, knowledge reservoirs). › The role of the CAP Network in supporting peer-to-peer learning as well as supporting the inclusion and the interaction of all AKIS actors in the knowledge-exchange and knowledge-building process. › The intensity and variety of interactions of AKIS actors taking into account the variety of actors involved. **Strengthening links between research/expertise and practice:** › Wider use of collaboration models of farmers with experts/researchers and advisors. › Well-functioning Innovation Support Services co-creating useful innovation from ideas on the ground. › Main collaboration pathways/organisation / structuring that make experts/researchers, advisors and CAP Networks work better and more regularly together to exchange and share knowledge, co-create innovation and build common projects (e.g. thematic knowledge hubs, cooperation to prepare demonstration events, knowledge exchange events, innovation projects). › Increased participation of 'hard to reach' farmers in the knowledge flows they need.
Regulation	Article 2 (b) of Implementation Regulation (EU) 2022/1475. Member States shall assess their CAP SP using the relevant evaluation criteria and assess the impacts of their CAP SP taking into account the scope, the type and the uptake of the CAP SPs interventions. Article 78 of Regulation (EU) 2021/2115. Knowledge exchange and dissemination of information.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to: a) **increased knowledge flows** and b) **strengthened links between research/experts and practice**? › To what extent do farmers change farming practices after participating in training programmes and/or making use of farm advice?
Evaluation criteria	Coherence, Effectiveness
Recommended factors of success	**a) Increased knowledge flows** › An increasing number of farmers participate in training programmes and/or make use of farm advice/advisory services. (Annex I to Implementation Regulation (EU) 2022/1475). › Farmers change farming practices after participating in training programmes and/or making use of farm advice/advisory services. (Annex I to Implementation Regulation (EU) 2022/1475). › An increasing number of AKIS interventions are implemented to foster knowledge sharing and innovation (take-up). › The use of knowledge exchange models and platforms has increased (in terms of frequency of use and/or diversity). › Interactions between AKIS actors have increased and strengthened (in terms of frequency and scope). › Peer-to-peer learning as well as the inclusion and the interaction of all AKIS actors in the knowledge-exchange and knowledge-building process has increased as a result of CAP Network activity. › An increasing number of advisors (advisory providers) are included in OGs (e.g. mixture of actors in OGs). › The quality of advice has improved.

	b) Strengthened links between research/other expertise and practice: › The cooperation of farmers with specialised researchers/experts has increased in comparison to the past (i.e. in comparison to the previous programming period). › The main collaboration pathways to exchange and co-create knowledge make farmers, researchers/ experts, advisors and CAP Networks work better and more regularly together. › 'Hard to reach' farmers have been reached - look also at new farmers that have joined OGs.
Evaluation phase	› During the programme and ex post evaluations.
Recommended methods and tools for evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Brainstorming; Political mapping; Visualised AKIS mapping; Knowledge mapping. › Methods for analysing: Social or Actor Network analysis; SWOT analysis; Force Field Analysis; Reflexive Monitoring in Action; Visualised AKIS mapping; Institutional analysis; Expenditure analysis; Contribution analysis; Outcome mapping; Innovation system analysis; Cluster analysis; Case studies; MAPP. › Tools: Problem tree analysis; Relational diagrams/Matrices; Net-map; Monitoring databases; Input/ output matrix.
Possible indicators (to be assessed, where relevant, in comparison to a baseline or to a target or evolution over time)	**a) Increased knowledge flows:** Indicators related to measuring participation in and/or effects of training, advice, knowledge exchange: › O.33 Number of supported training, advice and awareness actions or units. › Number of knowledge sharing models/tools supported (e.g. AKIS platforms, knowledge reservoirs). › R.1 Number of persons benefitting from advice, training, knowledge exchange or participating in European Innovation Partnership (EIP) OGs supported by the CAP in order to enhance sustainable economic, social, environmental, climate and resource efficiency performance. (Disaggregated by intervention where relevant.) › R.28 Number of persons benefitting from advice, training, knowledge exchange, related to environmental or climate-related performance. › Share of farmers using support for advice, training and knowledge exchange (may also distinguish for young/new farmers, women). › Number of new practices and new production systems introduced by farmers after participating in training and/or using farm advice/advisory services. › Number of AKIS actors involved in peer-to-peer learning activities, by types (e.g. farmers (may also distinguish for young/new farmers, women), advisors, ISSs). › Number of advisors and other actors in OGs (e.g. targeted mix of actors serving the objective of the project and the sharing of the outcomes). › Qualitative assessment of the quality of advice provided (based on a Likert scale[44]). **Indicators related to the interactions within AKIS:** › Number of interactive forms of exchange and events interconnecting the AKIS actors (e.g. networking activities, demonstration farms, specific actions to support knowledge flows and exchange). › Number of actors involved in interactive forms of exchange, events or processes by types (e.g. advisors, farmers, experts/researchers, 'hard to reach' farmers). › Share of AKIS actors supported by the AKIS interventions by types (e.g. advisors, farmers, SMEs). › Number of new interactions established within the AKIS through CAP support.

[44]The Likert scale is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement. Therefore, the quality of advice can be assessed through a survey.

	› Number of existing interactions strengthened within the AKIS through CAP support. › Quality of AKIS actors' participation in knowledge flows (qualitative assessment of their active participation). Number of cooperation agreements between the AKIS actors (if these are formalised).**b) Strengthened links between research and practice:** › Number of new cooperation activities based on practical innovation-oriented research approaches applied between farmers and researchers. › Share of different actors included in OGs by types (e.g. advisors, farmers, researchers, 'hard to reach' farmers). › Number of interactive forms of exchange organised connecting farmers, advisors, researchers, etc. (e.g. demonstration farms, cross-border activities). › Quality of AKIS actors' participation in OGs (qualitative assessment of their proactive and positive work and work ethics, based on a Likert scale).
4. Strengthening farm advice and fostering all advisors' interconnection within AKIS	
Recommended key elements to assess	› Strengthened use of vocational training and peer-to-peer learning paths for advisors and farmers (e.g. use of demonstration farms working in genuine production conditions). › Quality of the training received, as assessed by the advisors (content and scope, methods used, frequency, timing etc). › Strengthened use of (impartial) advisors (e.g. availability of a list of impartial advisors on a public website, indicating their expertise and specialisation). › Access to impartial advice on a broader range of topics, using a variety of methods and tools as foreseen in Regulation (EU) 2021/2115 and as visible in the design and implementation of interventions. › Use of methods for assessing the demand for farm advice (i.e. the assessment of the needs of farmers for specific types of advice, as well as whether sufficient overall advice is available). › Quality and relevance of the advice received as assessed by the persons benefitting from it. › Scope of advice given linked to EU objectives (e.g. which CAP objectives, which Green Deal objectives are covered). › Intensity and frequency of advice received (e.g. every time the farmers need it or restricted to a limited number of occasions, length of an average advisory session: too long or too short). › Collaborative networks of advisors within the AKIS. › Collaboration specifically between public and private advisors (e.g. common training and common activities, sharing of information after a training mission abroad). › The role of the CAP Network in supporting the inclusion and the interaction of the advisors within the AKIS. › The role of the advisors in supporting the inclusion of CAP Networks in practice-oriented events.
Regulation	Article 2 (b) of Implementation Regulation (EU) 2022/1475. Member States shall assess their CAP SP using the relevant evaluation criteria and assess the impacts of their CAP SP taking into account the scope, the type and the take-up of the CAP Strategic Plan's interventions. Article 15 (2) and (3) of Regulation (EU) 2021/2115. Farm advisory services. Article 78 of Regulation (EU) 2021/2115. Knowledge exchange and dissemination of information.
Recommended evaluation questions	To what extent have AKIS interventions contributed to strengthening farm advice and fostering all advisors' interconnection within the AKIS?
Evaluation criteria	Effectiveness

Recommended factors of success	› Increasing number of advisors and farmers participate in vocational training and peer-to-peer learning. › Increasing use of advice (including a broader range of topics, methods and advisory tools). › The use of methods for assessing the demand for advice (i.e. the needs of farmers to receive advice) has increased. › Advice provided is relevant and of good quality (linked to CAP objectives). › Advice is provided at the required level of frequency and intensity. › The inclusion and interaction of advisors within the AKIS has increased as a result of the work of the CAP Network. › The number of networks/collaborations of advisors has increased. › Collaboration between public and private advisors is established and/or has improved.
Evaluation phase	› During the programme and ex post evaluations
Recommended methods and tools for evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Brainstorming; Political mapping; Visualised AKIS mapping; Knowledge mapping; Surveys. › Methods for analysing: Social or Actor Network analysis; SWOT analysis; Force Field Analysis; Reflexive Monitoring in Action; Visualised AKIS mapping; Institutional mapping and analysis; Expenditure analysis; Contribution analysis; Outcome mapping; Innovation system analysis; Cluster analysis; MAPP. › Tools: Relational diagrams; Net-map; Monitoring databases; Input/output matrix; Spiral of innovation.
Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	**Indicators related to improving the skills of advisors:** › R.2 Number of advisors receiving support to be integrated within the AKIS. (Could be split up by intervention to see which intervention is most used and why.) › Number of peer-to-peer learning and vocational training actions that involve advisors and/or farmers. › Number of advisors and/or farmers participating in peer-to-peer learning and vocational training activities. › Frequency and intensity of training and skills upgrading (by type of skills) for advisors. › Number of trained advisors (or number of advisors that have participated in training), taking into account the duration of the events. › Number of cross-border visits of advisors and methods for spreading the knowledge acquired. › Qualitative assessment of training received (as assessed by advisors), in relation to content and scope, methods used, frequency, timing etc. **Indicators related to improving the provision of advice:** › Range of topics on which advisors provided advice. › Range of methods and tools used by advisors to provide advice and frequency of use. › Number/range of farmers/foresters/SMEs using advisory services. › Number (and territorial/thematic coverage) of specialists serving in advisory back-offices. › Number of methods/tools for satisfaction assessments of advice put in place on a regular basis. › Qualitative assessment of the satisfaction of advice provided. › Number of collaborations/joint actions amongst advisors as well as between advisors and other AKIS actors (e.g. researchers, CAP Networks, education and vocational bodies) to offer improved support to farmers/foresters (e.g. events organised, projects implemented, tasks conducted).

	› Number (and territorial/thematic coverage) of advisory specialists' back-offices (e.g. knowledge hubs, guardians of practical knowledge on specific themes). **Indicators related to the role of the CAP Network:** › Number of CAP Network actions that include advisors. › Number of advisors participating in CAP Network activities.
5. Innovations and Innovation Support Services (ISS):	
Recommended key elements to assess	› Implementing models of EIP-Agri within the CAP SP to foster bottom-up approaches and to capture grassroots innovative ideas. › EIP OG projects, their characteristics and effects, specifically: › thematic and geographical coverage; › methods to ensure the real implementation of a multi-actor approach and interactive innovation model; choice of relevant partners; sufficient budgets; › degree of participation of farmers, advisors, ISS and other practitioners in OGs and Horizon Europe multi-actor projects; › possible linkages with Horizon Europe multi-actor projects and CAP Networks; › capacity to develop long-term collaboration. › Innovation Support Services (ISSs) and their functioning to support innovations (including typologies of actors in ISSs, activities along the different stages of innovation processes). › Promotion of more practice-oriented, innovation-driven research approaches. › Active engagement of farmers in OGs › Dissemination, use and adaptation of innovations across the systems (e.g. thematic meetings where OGs, advisors and Horizon Europe multi-actor projects meet and exchange experiences). › The role of the CAP Network in fostering interactive innovation (e.g. methods, tools, intensity of events, knowledge of local AKIS actors to invite to events, wider choice of participants for AKIS events).
Regulation	Annex 1 to Implementation Regulation (EU) 2022/1475. Key element to assess: Based on the support for AKIS strategic actions, AKIS-related interventions and their impact on innovation uptake by farmers. Article 2 (b) of Implementation Regulation (EU) 2022/1475. Member States shall assess their CAP SP using the relevant evaluation criteria and assess the impacts of their CAP SP, taking into account the scope, the type and uptake of the CAP Strategic Plan's interventions. Article 127 (1) and (2) of Regulation (EU) 2021/2115. EIP for agricultural productivity and sustainability.
Recommended evaluation questions	› To what extent does the EIP support to AKIS through OGs contribute to speed up innovation (1) creation and (2) implementation (e.g. different types, models and stages of innovations), also by connecting policies and instruments? › To what extent do AKIS-related interventions contribute to innovation uptake by farmers?
Evaluation criteria	Coherence, Effectiveness, Added Value
Recommended factors of success	› OGs have improved links between research and practice. › Effectiveness of Innovation Support Services to speed up and facilitate innovation processes from capturing grassroots ideas to dissemination › Well-functioning ISSs, diversity of ISSs and mutual interactions to enable them to learn from each other. › The AKIS strategic approach has encouraged a wider use of available knowledge and a wider development of innovations.

	› The increased capacity to innovate at farms and system level. › OGs have encouraged a wider use of available innovation measures by adapting them to the local context. › Existence of Innovation Support Services databases (e.g. search of partners; providers of ISSs). › Existence of innovations databases. › Innovative methods/tools for dissemination/scaling innovations. › The effectiveness of CAP Network actions to support innovation.
Evaluation phase	› During the programme and ex post evaluations.
Recommended methods and tools for evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Visualised AKIS mapping; Knowledge mapping; Surveys; Innovation histories; Case studies. › Methods for analysing: Social or Actor Network analysis; SWOT analysis; Force Field Analysis; Reflexive Monitoring in Action; Visualised AKIS mapping; Innovation system analysis; Cluster analysis; Innovation histories; Case studies; MAPP. › Tools: Relational diagrams; Net-map; Monitoring databases; Input/output matrix; Spiral of innovation.
Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	**Indicators related to OGs:** › 0.1 Number of EIP OG projects. › Average budget per EIP OG project. › 0.2 Number of advice actions or units to provide innovation support for preparing or implementing EIP OG projects. › R.1 Number of persons benefitting from advice, training, knowledge exchange or participating in EIP OGs supported by the CAP in order to enhance sustainable economic, social, environmental, climate and resource efficiency performance (disaggregated by intervention where relevant). › Role of farmers, advisors, ISS and other practitioners participating in OGs supported by the CAP. › R.28 Number of persons participating in EIP OGs supported by the CAP related to environmental or climate-related performance. › Number of farmer-led OG projects. › Degree of interactions within OGs (e.g. density, degree centrality, reciprocity). › Qualitative assessment of EIP OG activities (e.g. sharing results, providing demonstrations, communicating), based on a Likert scale. › Evidence of long-term collaborations established, including numbers of new collaborations if relevant. **Indicators going beyond OGs:** › Degree of interactions within networks or other forms of cooperation and innovation processes supported under the AKIS strategic approach (e.g. density, degree of centrality, reciprocity). › Propensity to innovate of farmers supported under the AKIS strategic approach. › Level of capacity to innovate at farms and AKIS levels. › Number of farmers, advisors, ISSs and other bodies supported under the AKIS strategic approach. › Number of innovations supported under the AKIS strategic approach (e.g. characterisation by topic, by CAP objective, by supply chain). › Number of dissemination/scaling activities about (interactive) innovations. › Number of specific actions of the CAP Network to support (interactive) innovation.

6. Digitalisation, focusing on making effective use of information and communication technologies to improve knowledge sharing	
Recommended key elements to assess	› Development of tailored / ready-to-put-in-practice innovative digital technologies and tools at farm and system level (e.g. digital knowledge reservoirs, decision tools, apps for dissemination purposes) enhancing knowledge flows. › Development of skills and competences in digital technologies (or efforts addressing the lack of such skills).
Regulation	Article 2 (b) of Implementation Regulation (EU) 2022/1475. Member States shall assess their CAP SP using the relevant evaluation criteria and assess the impacts of their CAP SP taking into account the scope, the type and the uptake of the CAP SP's interventions.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to introduce innovative digital technologies for knowledge flows? › To what extent have AKIS interventions contributed to improving digital skills?
Evaluation criteria	Effectiveness
Recommended factors of success	› An increasing number of farmers are supported to adopt/use digital farming technology through testing in OGs under the CAP SP. › Digital platforms for knowledge exchange have been developed or increased. › Wider availability of new digital tools and information, including the increase of use of digital methods/ tools by advisors. › The AKIS strategic approach has created an enabling environment for farmers and rural actors to find impartial advice and to take up and effectively deploy digital technologies thanks to OG projects.
Evaluation phase	› During the programme and ex post evaluations
Recommended methods and tools for evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Knowledge mapping; Surveys. › Methods for analysing: SWOT analysis; Reflexive Monitoring in Action; Contribution analysis. › Tools: Net-map; Monitoring databases.
Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› Number of farmers supported by digital farming technology after testing in OG projects. › Number of digital platforms for knowledge exchange amongst AKIS actors. › Number of new digital methods/tools used by farmers and/or advisors, supported by training or advice.

7. Complementarities		
Recommended key elements to assess	› Linkages of AKIS interventions with other CAP SP interventions and with other national/EU plans/ programmes.	
Regulation	N/A	
Recommended evaluation questions	› To what extent are AKIS interventions coherent with other CAP SP interventions?	› To what extent are AKIS interventions coherent and complementary with other strategies, plans or initiatives at Member State level that target AKIS?
Evaluation criteria	Internal coherence	External coherence
Recommended factors of success	› The combination of AKIS interventions with other CAP SP interventions does not create any duplication or overlap.	› AKIS interventions do not overlap with or duplicate the support from other strategies or plans at Member State level. › AKIS interventions are combined well to create synergies and complementarities with other strategies or plans at EU/MS level.
Evaluation phase	› Ex ante, during the programme and ex post evaluations.	

Recommended methods and tools of evaluation	› Methods for observation: Focus groups; Semi-structured interviews; Surveys. › Methods for analysing: SWOT analysis; Institutional analysis. › Tools: Monitoring databases; Coherence matrix.	
Possible indicators	› Analysis of coherence matrix.	› Number of OGs (or related partners) operating in continuity with or are involved in Horizon/ESIF projects.

Table 5. Evaluation framework to assess contributions of the AKIS strategic approach to the achievement of other relevant SOs addressed by the CAP Strategic Plan concerned

SO1: To support viable farm income and resilience of the agricultural sector across the European Union in order to enhance long-term food security and agricultural diversity as well as to ensure the economic sustainability of agricultural production in the EU	
Recommended key elements to assess	› Viable farm income: by including stable income and also fairly distributed income. › Resilience: encompasses supporting farmers facing potential risks and specific limitations which can force them to stop agricultural activity.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO1?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO1 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› 0.1 Number of EIP OG projects addressing topics relating to SO1:
	  › in order to enhance economic performance/stabilising income;
	  › introducing new business models and to help a fairer distribution of income of farms and risk management.
	› Number of smaller farms (compared to average farm size) in areas with specific needs participating in OGs addressing topics relating to SO1.
	› 0.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO1:
	  › in order to enhance business skills;
	  › to diversify agricultural activities;
	  › to increase awareness and help decision-making on risk management instruments and strategies.
	› Number of smaller farms (compared to average farm size) in areas with specific needs participating in training, advice and awareness actions addressing topics relating to SO1.

SO2: To enhance market orientation and increase farm competitiveness both in the short and long term, including greater focus on research, technology and digitalisation	
Recommended key elements to assess	› Enhanced market orientation: Based on agri-food trade balance (import-export). › Farm competitiveness: Based on increased capital, labour and land productivity through innovation.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO2?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO2 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO2:
	  › introducing innovative marketing models (e.g. collective brands, shared market analysis, joint sales) in farms;
	  › introducing innovative capital, labour and land productivity assessment and management tools and solutions in farms;
	  › introducing innovative solutions (e.g. organisational, technological) in farms to increase capital, labour and land productivity;
	  › developing tools and certification schemes on employment and working conditions at farm level (e.g. social conditionalities).
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO2:
	  › to enhance skills and competences of farmers and advisors on market orientation and access;
	  › to increase awareness and knowledge on markets;
	  › to enhance skills and competencies of farmers and advisors on farm employment and working conditions on thet farm (e.g. social conditionalities).

SO3: To improve the farmers' position in the value chain	
Recommended key elements to assess	› Farmer's position in the value (food and non-food) chain: Integration of farmers within the food chain and participating in quality schemes and organic production to increase added value.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to achievement of SO3?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO3 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO3:
	  › development of new quality schemes;
	  › development of methods/tools increasing the share of marketed production by quality schemes/ of organic production/gross added value in farms participating in OGs;
	  › development of methods/tools ameliorating concentration ratios and profit margins across supply chains of farms participating in OGs.
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO3:
	  › to enhance skills and competences of farmers and advisors on organic farming production and marketing, on quality schemes and certification procedures, on farmers' collaborative schemes as well value chain collaborations and management.

SO4: To contribute to climate change mitigation and adaptation, including by reducing greenhouse gas emissions and enhancing carbon sequestration, as well as promote sustainable energy	
Recommended key elements to assess	› Climate change mitigation: Based on greenhouse gas emissions (GHG) and carbon sequestration. › Climate change adaptation: Based on the resilience of agriculture to climate change.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO4?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO4 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO4:
	  › development of methods/tools decreasing GHG emissions, increasing or maintaining soil organic carbon through carbon sequestration, increasing energy production capacity from renewable sources and increasing resilience to climate change in farms participating in OGs;
	  › introducing farming practices for crop diversification and expansion of crop rotations and mixed crop livestock farming of farms participating in OGs.
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO4:
	  › to enhance skills and competences of farmers and advisors on GHG emissions in agriculture/ Soil organic carbon sequestration/Do Not Significant Harm (DNSH) principle/ Renewal energy production/climate change resilience;
	  › to increase awareness and knowledge on topics related to climate change mitigation (e.g. GHG emissions, carbon sequestration).
	› R.28 Number of persons benefitting from advice, training, knowledge exchange or participating in European Innovation Partnership (EIP) Operational Groups supported by the CAP related to environmental/climate performance.

SO5: To foster sustainable development and efficient management of natural resources such as water, soil and air, including by reducing chemical dependency	
Recommended key elements to assess	› Efficient management of natural resources: Based on preserving or enhancing natural resources quality and quantity by reducing pollutants and exploitation.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO5?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO5 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO5:
	  › developing methods/tools that improve efficient management of natural resources such as the efficiency of the irrigation network and water balance; management of nutrients/ managing slurry and liquid manure/ using inorganic nitrogen fertilisers more efficiently;
	  › developing less water-intensive crop systems.
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO5:
	  › to enhance skills and competences of farmers and advisors with regard to the preservation and enhancement of the quality and quantity of natural resources by reducing pollutants and exploitation, efficient management of natural resources;
	  › to increase awareness and knowledge on the effects of and benefits from the efficient management of natural resources.
	› R.28 Number of persons benefitting from advice, training, knowledge exchange, or participating in European Innovation Partnership (EIP) Operational Groups supported by the CAP related to environmental/climate performance.
	› Share of decreased ammonia emissions in agriculture, nutrient leakage and soil erosion from farms participating in OGs.
	› Share of decreased use of and risk from chemical pesticides and/or more hazardous pesticides from farms participating in OGs.
	› Share of improved nutrient balance on agricultural land, thus reducing nutrient losses in farms participating in OGs.
	› Share of decreased pressure on natural water reservoirs in farms participating in OGs.

SO6: To contribute to halting and reversing biodiversity loss, enhance ecosystem services and preserve habitats and landscapes	
Recommended key elements to assess	› Reversing biodiversity loss: Based on biodiversity and habitats in agricultural land or other areas affected by agricultural or forestry practices. › Ecosystem services: Based on landscape features that contribute to ecosystem services by hosting relevant species (e.g. through pollination, pest control), by biophysical processes (e.g. through erosion control, water quality maintenance) or by cultural values (e.g. aesthetic value).
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO6?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO6 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO6:
	  › developing methods/tools and models for agrobiodiversity/ to develop ecosystem services;
	  › developing farming and forestry practices aiming at reversing biodiversity loss/increasing ecosystem services.
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO6:
	  › to enhance skills and competences of farmers and advisors for reversing biodiversity loss in farming practices/contributing to ecosystem services;
	  › to increase awareness and knowledge on effects from biodiversity loss and agricultural or forestry practices that cause biodiversity loss, opportunities for agricultural or forestry practices reversing biodiversity loss and contributing to ecosystem services.
	› R.28 Number of persons benefitting from advice, training, knowledge exchange or participating in European Innovation Partnership (EIP) Operational Groups supported by the CAP related to environmental/climate performance.
	› Share of improved biodiversity related to agricultural land attributed to farms participating in OGs.
	› Share of halted/decreased biodiversity loss attributed to farms participating in OGs.
	› Number of farms in Natura 2000 areas participating in OGs.
	› Share of agricultural land in Natura 2000 areas participating in OGs.

SO7: To attract and sustain young farmers and other new farmers and facilitate sustainable business development in rural areas	
Recommended key elements to assess	› Farmers' renewal: Based on supporting young farmers and new farmers setting up and continuity (by gender). › Business development: Based on supporting rural business start-ups and farm diversification.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO7?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO7 is facilitated and improved by AKIS interventions.

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO7, that include:
	  › young farmers (by gender);
	  › rural start-ups (by gender);
	  › farm diversification.

	› 0.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO7, of which: › to enhance skills and competences of (a) young farmers and (b) rural start-ups; › to increase awareness and knowledge on opportunities (CAP support, credit, business/ managementt tools) and on innovations produced by OGs for (1) young farmers (2) rural start-ups and (3) farm diversification; › to increase awareness of young and new farmers on innovations produced by OGs; › support for advisory services for young farmers/start-ups. › Number/share of OGs involving young farmers or rural start-ups or farm diversification actors. › Number/share of training, advice and awareness raising actions involving young farmers or rural start-ups.
SO8: To promote employment, growth, gender equality, including the participation of women in farming, social inclusion and local development in rural areas, including circular bio-economy and sustainable forestry	
Recommended key elements to assess	› Rural sustainable economy: Based on economic growth and promoting employment. › Local development: Provision of local services and infrastructure. › Gender equality and social inclusion: Promotion of participation of women in farming and the other sectors of economy; income equity and poverty reduction.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO8?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO8 is facilitated and improved by AKIS interventions.
Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› 0.1 Number of EIP OG projects addressing topics relating to SO8: › developing methods/tools and models to enhance employment rates in rural areas and to combat poverty, to enhance the participation of women in farming and the whole economy; local development; gender equality, rural/urban interconnections, new businesses – especially bio-economy related business, sustainable forestry, etc. › 0.33 Number of supported training, advice and awareness actions addressing topics relating to SO8: › local development; . › gender equality; › sustainable forestry; › circular bioeconomy › Number/share of circular bio-economy related businesses participating in OGs. › Number/share of women or disadvantaged people participating in OGs.
SO9: To improve the response of European Union agriculture to societal demands on food and health, including high quality, safe and nutritious food produced in a sustainable way, the reduction of food waste, as well as improving animal welfare and combatting antimicrobial resistance	
Recommended key elements to assess	› Quality and safe food: Based on fostering quality schemes, promoting animal welfare and combatting antimicrobial resistance.
Recommended evaluation questions	› To what extent have AKIS interventions contributed to the achievement of SO9?
Evaluation criteria	Effectiveness
Recommended factors of success	› The implementation of interventions under SO9 is facilitated and improved by AKIS interventions

Possible indicators (to be assessed in comparison to a baseline or to a target or evolution over time)	› O.1 Number of EIP OG projects addressing topics relating to SO9:
	  › developing methods/tools and models for new/adapted quality and safety food schemes/animal welfare/ combatting antimicrobial resistance, etc.
	› O.33 Number of supported training, advice and awareness actions or units addressing topics relating to SO9:
	  › Value of production marketed under quality schemes/animal welfare/antimicrobial use, etc.
	› Share of increased value of production marketed under quality schemes of farmers participating in OGs.
	› Share of improved animal welfare of farmers participating in OGs.
	› Share of decreased antimicrobial use in farms participating in OGs.
	› Share of decreased antimicrobial use in farms benefitting from training, advice and awareness actions or units.

4.2 Methodological approaches to evaluate AKIS in the CAP Strategic Plans

This chapter proposes an overall approach for the evaluation of the AKIS within the CAP Strategic Plans. It offers the rationale for applying the theory of change as a starting point, which is often used in evaluations and then gives a brief overview of the theory of change. The rest of the chapter suggests a list of methods and tools that can be used to apply the theory of change as well as some considerations concerning data requirements. The evaluator(s) would need to identify the most relevant methods depending on the objectives of the evaluation and the resources available and discuss the final choice with the MA.

The choice of the overall evaluation approach will aim to:

- Improve the understanding of what is working and what is not in relation to the AKIS interventions and how they and their combination can be improved;
- Build capacities, among AKIS governing bodies and other relevant actors, to think critically about what is required to bring about the desired change and contribute to the CCO of the CAP through the AKIS strategic approach;
- Build capacities to consider the complexity of interdependencies between the AKIS-related interventions, the actors and the context, as well as underlying causes and interdependencies of certain paths.

To achieve these goals, the current document suggests an overall approach that is based on the following principles, where applicable:

- **Use of the theory of change approach**: this type of evaluation is especially suitable when the context is complex, as AKIS is in many Member States. The AKIS strategic approach is very much related to the context of each Member State. For this reason, one of the key principles for designing and conducting the evaluation is to provide for the systematic production of specific evidence-based knowledge based on the theory of change approach. This will allow reflections on the multi-dimensionality and multi-level features of the AKIS in Member States.
- **Collective learning and empowerment process, of relevant AKIS actors, including MAs**: This might increase the ownership of the results and recommendations of the evaluation and hence improve the likelihood of improvements in terms of interventions, structures and governance. Collective learning and empowerment are possible through an interactive process, which is central in the use of theory of change approaches. Equally, the production of evidence following the theory of change approaches requires a mix of quantitative and qualitative approaches, with the latter relying heavily on the participation of relevant actors (both 'givers' and 'receivers', i.e. programme managers and beneficiaries).
- **Taking into account unpredictability in the theory of change approach**. There is always some degree of unpredictability with regard to the expected progress and results of AKIS strategic approaches/plans due to concurring changes in contexts (e.g. innovations in agricultural systems and practices), modes of interaction, knowledge flows and, ultimately/certainly, the capacities of the respective actors (e.g. interactive models of innovations; greater integration of consultants within the AKIS; bridging the gap between research and practice).
- **An evaluation should be useful**. For this reason, the active and early engagement of intended users of the evaluation in the evaluation process is fundamental. They would be more likely to use evaluations if they understand and feel co-ownership of the evaluation process and findings. For example, Utilisation-Focused Evaluation (UFE) might be suitable (Box 1). The evaluator can facilitate follow-up and ensure consultative interactions between the evaluator and intended users to reflect on actual findings and decide what is important, relevant and useful.

Box 1. Example of the UFE (Utilisation-Focused Evaluation) in the evaluation of the AKIS strategic approach in CAP SPs

A step by step approach to UFE is proposed to:

1. Identify, organise and engage primary intended users as well as identify and prioritise primary intended uses by determining priority purposes;
2. Check the evaluation inquiry to address and gain commitment to UFE and focus the evaluation, by determining what intervention model or theory of change is being evaluated;
3. Decide on evaluation methods;
4. Analyse and interpret findings and reach conclusions;
5. Disseminate evaluation findings.

UFE is mostly appropriate in cases of new programmes/topics like the AKIS strategic approach where the intended users and evaluator might be less aware about areas of evaluative inquiry and there is a need for increasing co-ownership and commitment towards evaluation findings for improvement. In fact, UFE helps to co-construct the theory of change on a continuous basis (e.g. to what extent have AKIS interventions contributed to increase knowledge flows and strengthen links between research and practice?), to discover possible uses, to finetune inquiries about the evaluation (e.g. actual implementation of the AKIS strategic approach) and to actually benefit from them for decision-making.

For further information: Patton, M.Q. and Horton, D. 2009. Utilization-Focused Evaluation for Agricultural Innovation. International Labor Accreditation Cooperation (ILAC) Brief No. 22. ILAC, Bioversity, Rome.

4.3 The theory of change: Theory and practice

This chapter offers a brief overview of the theory of change in evaluations and then a description of suggested key steps for applying the theory of change in the evaluation of the AKIS strategic approach.

Box 2. Theory of change for evaluations - short description

The starting point of a theory-based evaluation design is always a causal chain or theory of change which explains how and why the intervention will work and is expected to lead to the intended outcomes.

Theory of change is a good approach to shed light on the effectiveness of interventions. The assessment of effectiveness explores the extent to which the interventions attain the policy objectives. The theory of change evaluation approach answers a key question related to effectiveness: How and to what extent have the stated objectives been achieved? (e.g. to what extent does the AKIS strategic approach contribute to the achievement of the CCO? To what extent did the AKIS strategic approach contribute to capacity development?)

With this approach, successive criteria are developed that formulate, in a logical chain, the preconditions and conditions that are necessary to ultimately achieve desired (positive) effects (e.g. increased interaction of advisors within the AKIS).

These criteria are then checked step-by-step to see whether they are met and, thus, the degree to which the postulated results can be achieved. The more preconditions along the impact chain can be fulfilled, the more likely it is that the expected results and impacts will be achieved. The review of the chain of results should provide indications as to whether the funding strategy has been successful or it should be adapted.

Although the effects are mainly recorded qualitatively, the overall consideration of the building blocks along the impact chain increases the robustness of the evaluation.

Working steps to conduct a theory-based evaluation:

- Map out (reconstruct) the conceptual model of interventions in order to capture the goals at different levels and the planned activities and target groups to achieve the desired change. The explicit statement of the 'programme theory' is important as it provides the underlying logic for evaluation;
- Verify the implementation of the different building blocks of the impact model by mixed information sources and tell the 'performance story' at a detailed activity level through empirical research which explores how the conceptual model has worked in practice;
- Draw evidence-based conclusions on whether implementation and practice actually fit with expected goals and theory of change. Based on the collected evidence, a judgement is made on the effectiveness to achieve strategic and operational goals mapped out at the beginning, i.e. in the CAP SP.

In its simple format, the theory of change approach to evaluation is based on non-rigorous methods such as monitoring hard data analysis (quantitative), interviews, focus groups and case studies (qualitative), which deliver the information necessary to verify (or not) the implementation of planned activities in line with the intended change. Hence, it relies on quantitative information on financial inputs and outputs and qualitative estimates on results and impacts.

This exercise ends up with a judgement on the contribution of the main outputs and identified results with respect to a certain intervention(s) to the intended change. It produces narrative and non-parametric data such as qualitative classifications, e.g. low, medium, high contribution of an intervention to achieving the defined objectives (e.g. in relation to AKIS interventions, it would be the contribution to achieving the CCO).

For more information, see: European Commission, "Investment Support under Rural Development Policy Contract 30-CE-0609852/00-41", Final report, 2014.

Applying the theory of change for evaluating the AKIS strategic approach involves the following steps:

1. Orientation phase: The evaluator is to be selected at the very early stage of the evaluation, who must fully understand AKIS interventions and their combination (the AKIS strategic approach). In order to build the theory of change, the first step for the evaluator is to identify which interventions of the CAP SP are related to AKIS. For example, different cooperation measures, including cooperation for innovation, LEADER, advisory services, knowledge exchange, productive or non-productive investments.

The introductory qualitative analysis is a very practical and useful step that serves as a baseline for the analysis. It sets out the preconditions to be in place in order to achieve objectives and the interim results that lead to overall objectives (i.e. the production of the desired change).

2. Identifying and engaging relevant AKIS actors to be involved all along the evaluation process: A list of AKIS actors should include institutional bodies related to the CAP SP and possibly of other related policies (at national and/or regional level) that might be influential (e.g. research and innovation); key potential beneficiaries and other possible influential actors (e.g. farmers and their organisations, advisors, CAP Networks). Such actors will help the evaluator implement the theory of change approach with the involvement of all key actors.
3. Introductory qualitative analysis: co-reviewing (with the help of the identified actors) the pathway of change of the AKIS strategic approach (AKIS interventions and their combination). The main aim of this introductory qualitative analysis is the assessment of the different potential effects of the AKIS-related interventions. This involves:
   - Review planned interventions. The evaluator will facilitate the review of the intervention logic of the AKIS strategic approach, of each intervention per se and of their combination. While reviewing interventions, evaluators should pay attention to the detailed content of each intervention, notably any sub-interventions included; for instance some Member States may have demonstration, training of farmers and training of advisors under one intervention, while other Member States may have single type interventions for each of them in their CAP SP. The intervention logic is the basis for the application of the theory of change approach. During this exercise, it is important to orient the actors towards detecting possible problems, constraints and influential (positive/negative) factors that could interfere in the pathway of change.
   - Analyse the expected implementation of interventions. Then, the evaluator will guide the actors to describe the expected results of AKIS interventions and their combination. An impact pathway flowchart (see example below) can be used to map:
     - the pre-conditions,
     - the interim outcomes and
     - the ultimate goal(s) that AKIS actors expect to be achieved through the implementation of the interventions, as well as
     - any underlying assumptions pertaining to the achievement of the results.

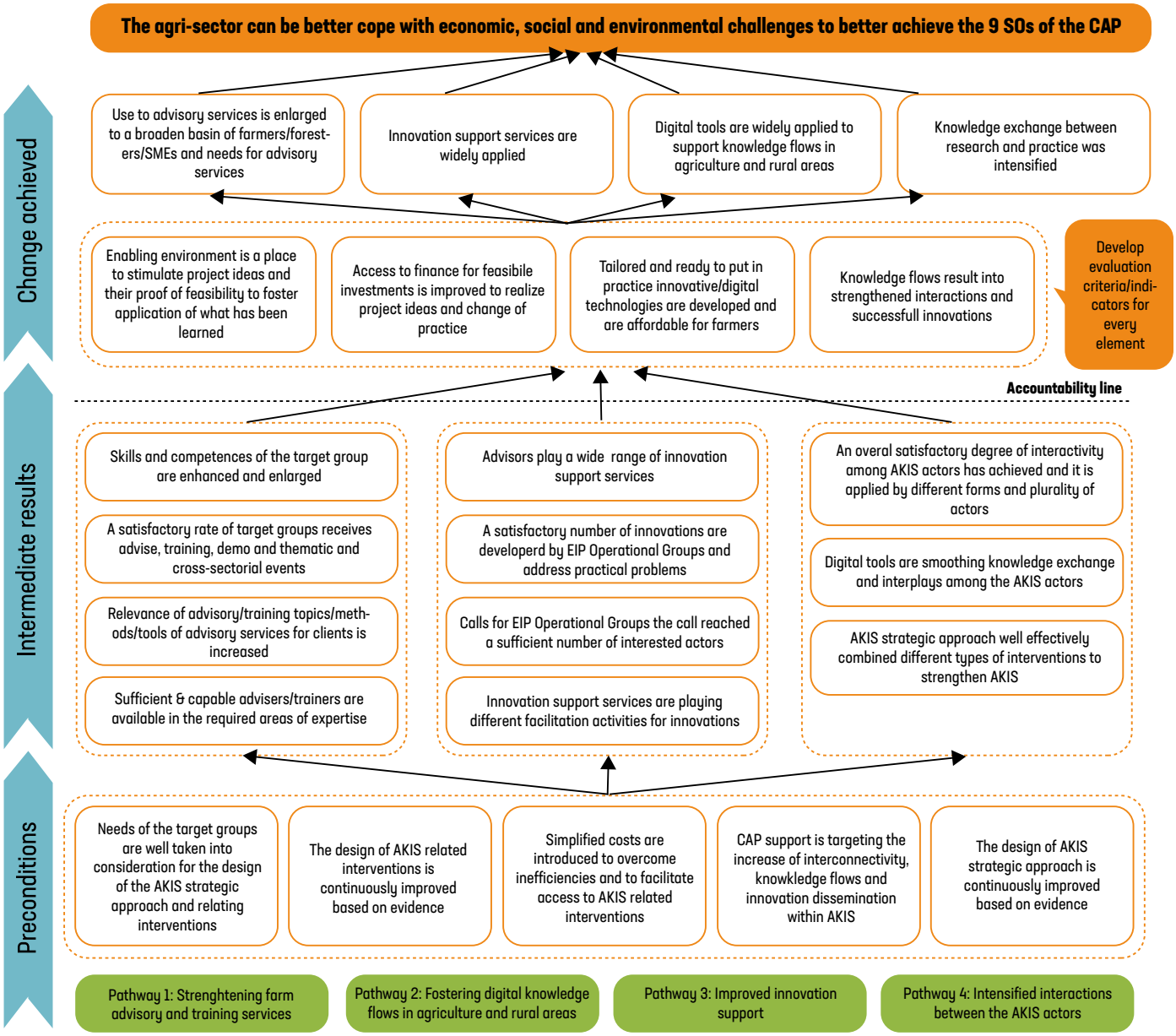
     This can be in the form of a qualitative analysis at the beginning of the evaluation process in order to reflect on various possible expected or unexpected, positive or negative effects of the AKIS interventions.

- Estimate the magnitude of change. After linking the expected effects with the intervention logic of the AKIS strategic approach, the evaluator may identify the magnitude and the scope of 'observed' gross effects, which, at a later stage, should be subject to more rigorous quantitative verification using appropriate methods such as causal inference approaches. The magnitude of change may be influenced by two key factors:
  - the intensity of interventions. For instance, some Member States may include advice but only a limited number of advisors are involved and a very limited number of people/farmers are entitled to profit from it. Such low intensity may lead to a lower estimated magnitude of change;
  - the budget allocated to interventions. The expenditure per intervention (or sub-intervention) may also have an impact on the magnitude of change.

4. Co-reviewing the 'variables of observation'. These are selected among the indicators that have already been proposed in the evaluation elements (see Tables 4 and 5). The indicators chosen by the MA/evaluator will need to be assessed against a target or a baseline. Determining thresholds for each indicator should be decided among all the actors involved so that they can determine the degree of performance of the specific AKIS interventions by the time the results are produced. These can then be compared to the expected results identified during the introductory qualitative analysis to assess whether the observed or expected change has actually occurred.
5. Identification of methods and tools as well as data sources. The choice of methods depends on the AKIS key elements to assess, the evaluation question and its related elements (factors of success and indicators). The next section deals specifically with a range of such methods.

The following figure depicts a practical example of the steps involved in applying the theory of change approach to analyse the expected implementation of interventions, using an impact pathway flowchart. It starts from the preconditions that are in place in order to achieve the interim results, which in turn will lead to the expected change achieved. Note that evaluation criteria and indicators need to be developed for every element of the expected change. These are the 'variables of observation', which enable the assessment of whether the expected change has actually been achieved.

Figure 3. Practical example of applying the theory of change approach: Impact pathway flowchart



Source: European Evaluation Helpdesk for the CAP (2023)

4.4 Methods and tools for the evaluation of the AKIS strategic approach in the CAP Strategic Plan

The overall theory of change approach to the evaluation of the AKIS strategic approach could be applied through several methods and tools that adequately fit the purpose of system analysis, review of theory of change and collective learning towards action.

Evaluation methods and tools are identified during the 'Structuring' phase of the evaluation and implemented in the following conducting phases (composed of 'Observing', 'Analysing', and 'Judging'). It is proposed to structure the 'Observation', 'Analysing', and 'Judging' activities around a mix of methods and tools that should be put in place according to the purposes of evaluations, stages of policy implementation (e.g. ex ante, ongoing, and ex post) and elements to be assessed. While evaluators may propose methods, the final choice of a method or a mix of methods will rely on close collaboration between the MA and evaluators and will depend on the scope and budget available for the evaluation (as each method has its cost), bearing in mind that the ultimate objective for the MA may be to receive useful policy recommendations.

> The methods chosen will help collect and analyse data and information, to calculate indicators and to provide answers to the evaluation questions.

The following table offers an overview of possible evaluation methods, which are then described in more detail in Annex 5.

Table 6. Overview of possible evaluation methods for the evaluation of AKIS

Method	Brief description	Conditions for using
Methods that help co-construct the theory of change		
Contribution analysis	A method for assessing causal questions and inferring causality.	› A relatively clearly articulated theory of change to be used as a basis. › Ongoing collection of evidence. › Other influencing factors are recognised and assessed.
Outcome mapping	A method consistent with the theory of change, providing a framework to collect data on immediate, basic changes about interventions that can bring about substantial social change.	› Getting engagement of the different groups involved in the process and maintaining their interest. › Skilled facilitation. › Dedicated budget and time. › Evaluators with experience in using outcome mapping.
Most Significant Change (MSC)	A method that helps generate and analyse personal accounts of change (stories) and decide which of these accounts is the most significant.	› Getting engagement of the different groups involved in the process and maintaining their interest. › Good facilitation skills and ability to identify priorities. › Time availability (for the analysis of stories and sharing with both contributors and stakeholders, repeated through several cycles). › Evaluators with experience in using MSC.
Methods based on the actor-network theory		
Stakeholder mapping and analysis	A method that helps identify relevant stakeholders and roles for a certain intervention/system. It is useful when it is focussed on a specific aspect, for example knowledge flows; then it identifies stakeholders as knowledge providers, creators, users, etc.	› Well-designed interviews with AKIS actors. › Identification of which sources of information to use to identify AKIS actors (e.g. EU Dashboard, cohesion fund databases, etc.).

Social Network Analysis (SNA)	A method that can be used to explore networks in terms of actors and the relationships or interactions that connect them.	› Evaluator with experience in using SNA. › Stakeholder mapping and analysis. › Structured questionnaires and specialised software. › Ongoing collection of relevant data from the early stages of implementation.
Methods based on the actor-network theory		
Knowledge mapping	A technique that makes it possible to identify and visualise the relationships established between members of a network as well as between networks.	› Structured questionnaires and specific knowledge map tools/templates/software.
Actor Network Analysis	A method for the analysis of actors: what actors think, value and do.	› Semi-structured interviews with a representative sample of AKIS actors. › Evaluator with experience in using Actor Network Analysis. › Structured questionnaires and specific software.
Visualised AKIS mapping	A technique that provides a snapshot of actors and linkages within a certain system.	› Semi-structured interviews and focus groups. › Relational diagrams.
System analysis methods		
Innovation System Analysis	Understanding how the process of innovation is working (or not working) in a country, and distilling recommendations for the improvement of its performance. This approach provides a holistic view of innovation policies with the focus on how a certain system (e.g. AKIS) is functioning to help innovation processes, based on interplay and interactive learning between actors.	› Identification of appropriate level of analysis (e.g. regional, sectoral). › System perspective. › Semi-structured interviews, focus groups, case studies. › Relational diagrams.
Rapid Appraisal of Agricultural Innovation Systems (RAAIS)	This method facilitates depicting key entry points for innovation to solve problems at different levels of a system through analysing (1) interactions between different dimensions, levels and stakeholder dynamics of complex agricultural problems, (2) innovation capacity in agrifood systems and (3) the existence and performance of the agricultural innovation system.	› Understanding of the conceptual framework of RAAIS. › Evaluator with experience in using RAAIS. › Iterative and flexible evaluation design to adapt to context. › Stakeholders' engagement during all the stages of evaluation. › Good facilitation skills. › Combination of multiple methods for data collection: multi-stakeholder workshops, semi-structured in-depth interviews, questionnaires, secondary data analysis.
Institutional mapping and analysis	A method to map and analyse how institutions interact in the design and implementation of policies.	› Interviews and focus groups.

System analysis methods		
Force Field Analysis	A method that helps in understanding how to strengthen forces that drive change and how to resist forces that weaken change within a certain system. It is based on the idea that situations are maintained by an equilibrium between forces that drive change and others that resist change. For change to happen, the driving forces must be strengthened or the resisting forces weakened.	› Familiarity with Mindtools.
Reflexive Monitoring in Action (RMA)	An integrated methodology to encourage learning within multi-actor groups or networks as well as institutional change in order to deal with complex problems.	› Familiarity with the guide and tools for RMA. › Good skills on reflective exercise. › Better to use at an early stage and on an ongoing basis in order to obtain more reliable results.
Transversal methods		
Case studies	A method that helps explore a certain topic in depth by collecting different types of information (quantitative, qualitative, descriptive). It also helps understand how different elements fit together and have produced certain effects.	› Semi-structured interview and focus groups with privileged testimonials.
Innovation histories	This method helps identify, track and document innovation processes that happen within a network through 'story telling'.	› Familiarity with the guide and tools for innovation histories. › Use of relational matrices to allow immediate visualisation among participants. › Capacities to stimulate discussion, reflection and learning among participants. › Stakeholders' engagement during all the stages of evaluation.
Focus groups and interviews	Dialogue-based methods.	› Well-designed questionnaires. › Good understanding of the subject and the target audience.
Surveys	A method that collects different types of information from a large number of respondents.	› Well-structured survey questions. › Must be concise and to the point.
MAPP (as a counterfactual method)	A focus group method for the assessment of impacts	› Familiarity with the specific tools of the method. › Careful choice of participants based on the principles of MAPP.
Innovation capacity scoring tool	This is a tool that provides scores about the level of innovation capacities of a system on the basis of 24 indicators.	› Focus groups and structured interviews to collect scores. › Familiarity with the FAO guide on this method. › Needs trained facilitators.

For more detail on the abovementioned methods, references and examples of how they have been applied in practice, see Annex 5 of these guidelines.

4.5 Data and information needs and sources

What data to consider

When defining data needs, collection methods and sources for relevant information, it is important to take into account the requirements of Regulation (EU) No 2021/2115 and Commission Implementing Regulation (EU) No 2022/1475 relating to, on the one hand, the periodic monitoring and performance assessment during the programme and, on the other hand, ex post evaluations, as well as the specific evaluation approach, elements to assess, factors of success and indicators.

Due to the novelty of the topic for policy and evaluation, relevant quantitative and qualitative information about the AKIS strategic approach in Member States may not be available or comparable over time to cover all needs.

A bulk of data about AKIS-related interventions, namely training, advisory, cooperation for innovation and CAP Networks, **has been gathered since the 2007-2013 CAP programming period** and it might be useful to be integrated into the theory of change of AKIS strategic approaches. In addition, Member States need to consider complementing their monitoring systems from the beginning with the collection of data which are pertinent for the indicators that they choose to assess the AKIS strategic approach. Therefore, in addition to the common results indicators, other indicators are proposed in these guidelines (Table 4). As these are only proposals, Member States have to consider what is relevant to their situation and needs and incorporate the related data into their monitoring systems.

In any case, evaluators can rely on the set of **common indicators** that Member States are required to periodically provide which relate to inputs, outputs and results of the AKIS interventions (Table 4).

The most important data issues to consider include:

- The need for data at different levels, such as the macro-level (e.g. AKIS in Member States; the AKIS strategic approach of the CAP SP), the meso-level (e.g. AKIS interventions, OGs developing innovation knowledge flows and interactions at AKIS level) and micro-level (e.g. different typologies of actors and their knowledge flows and interactions);
- The typologies of data, such as qualitative data (e.g. capacities of advisors; quality of interactions among actors), quantitative (e.g. number of OGs);
- The need for different types of indicators, such as, input, output, result and impact indicators;
- The plurality of primary and secondary data sources: Monitoring systems set up by the MAs of CAP SPs (e.g. % of CAP expenditure on AKIS interventions), statistical bodies (e.g. public expenditure on R&I; level education/training), databases (like FADN) and also a wide range of AKIS actors that could provide primary data usually gathered through participatory collection methods (e.g. beneficiaries' satisfaction form; propensity to innovate; capacity to innovate);
- The variety of interpretations of terms between Member States: For the outcomes of evaluations to be comparable (between Member States), evaluators will need to overcome the issue of different interpretations of output indicators. For instance, an 'action' may mean different things, for instance 'project' or 'programme', etc. in different Member States.

The cascading approach to data and information

For the above reasons, the evaluation can start with the available hard data to calculate some indicators and then complement them with additional data and qualitative information to go deeper in the analysis so as to be able to provide explanations of the phenomena and the trends observed. The available quantitative data from monitoring systems can be used to calculate the common result indicators. But this may not be sufficient to understand the real change that was brought about by the AKIS interventions and may require additional data and/or information.

For example, to assess increased knowledge flows, the indicator R.1 will be used:

- R.1 Number of persons benefitting from advice, training, knowledge exchange supported by the CAP.

In the first place, the total number provided by this indicator needs to be broken down into the components of the indicator (advice, training, knowledge exchange). Subsequently, it needs to be enriched with additional data and information in order to use it to improve the implementation of the CAP SP in relation to the AKIS. For instance:

- **Advice:** To what extent has advice been offered and why? To what extent has the advisory intervention been taken up and why? If there is low take-up of advice, why is this? What can be done to increase uptake? Is the budget sufficient to match the demand from farmers?
- **Training:** To what extent has training been offered and why? How many people take up the training measure? Are they happy with the topics offered for training? To what extent have they improved their skills and which skills? Is the budget sufficient to match the demand from farmers? Is the budget sufficient to train advisors intensively on a variety of topics and skills?
- **Knowledge exchange:** In this case, the R.1 may need to be complemented by other indicators, as for example the one on the 'Number of stakeholders involved in peer-to-peer learning activities', but mainly with qualitative information stemming from interviews, surveys or case studies to assess how knowledge exchange between research and practice or knowledge exchange amongst peers (e.g. farmers or advisors) has occurred. Is the budget sufficient to match the demand from AKIS actors?

Data collection considerations

It is also worth noting that, since 2012, some efforts have been made to collect relevant data **through information projects and studies** conducted at both EU and Member States levels, like the

PRO AKIS and i2connect[46] EU projects, OGs' evaluations carried out under the 2014-2020 RDPs and, ultimately, in the context of the SWOT and needs analyses carried out for the purpose of CAP SPs. In addition, a number of databases at EU and Member State level register information about some key components of AKIS (actors and infrastructures) and can be put to use for evaluation purposes (Table 4).

As a result, nowadays a body of relevant knowledge which mainly reflects the infrastructural and process perspectives on AKISs across the EU is available. This, in turn, may be used as a baseline for evaluations and help an early reconstruction of the theory of change of AKIS strategic approaches in Member States.

Eventually, embedding the theory of change into evaluations will help establish data collection processes by mapping existing data and identifying areas for collecting additional data as well as tracking changes occurring due to the CAP SP, throughout the implementation period.

Notwithstanding the above, evaluations of AKIS strategic approaches will need to establish **consistent data and information collection activities**. To this end, while some data will be available through project-related, statistical and study-related documentation, additional data and information collection should start early, preferably from the beginning of the implementation period.

Finally, in addition to the indicators proposed in Table 4, MAs and evaluators can draw inspiration from the "global innovation index 2017"[47], which is based on the FAO AIS diagnostic tool[48] and proposes a list of indicators determined through the help of key experts and relating to both the properties and the outcomes of AKIS at national level and for different domains (e.g. research and education, bridging institutions, business and enterprise, enabling environment).

5. Judging phase

The last phase of the evaluation is the 'Judging' phase. This is where the evaluator interprets the evaluation findings, formulates answers to the evaluation questions on the basis of the success factors and indicators and reaches conclusions and recommendations.

5.1 What to consider in conclusions and recommendations

In order to reach quality conclusions, the answers to the evaluation questions must be based on sound evidence and accompanied by a critical discussion of the evidence. For example, where the values of indicators are very low or lower than expected, a proper explanation shall be provided, taking into account the context and other factors that influence the achievement of the expected effects. For instance, if the innovation uptake is lower than expected, the explanation may be found in the enabling environment or in the quality of innovation brokerage, etc.

To this end, the methods proposed in these guidelines combine participatory approaches with system and network analyses that go beyond numbers to analyse links, relationships, information flows, etc., and thus generate qualitative evidence that may disentangle multiple causalities that explain the numbers. In this respect, quality conclusions and recommendations can be reached if the evaluator:

- Answers the evaluation questions, taking into account the context.
- Carefully judges to what extent AKIS interventions and their combination contribute to achieving the CCO of the CAP.
- Identifies the factors behind any success or failure of the AKIS interventions.
- Drafts conclusions and recommendations appropriately substantiated by the findings and rooted in the answers to the evaluation questions.

A good practice in this phase is to discuss the evaluation findings with AKIS actors in order to gather more information to formulate judgements and conclusions and to help ownership towards an effective use of the recommendations. The latter should be practical and based on AKIS actors' needs for adaptation of the AKIS strategic approach and its delivery.

5.2 Dissemination, communication and follow-up of the evaluation results

Communication between and towards stakeholders occurs throughout the evaluation process, but the main communication effort comes at the end, after the results and recommendations have been finalised. Some evaluations may even include a communication plan developed at the beginning of the evaluation process.

For better dissemination, the evaluation report should be made public, on the website of the MA and/or the websites of AKIS actors involved in the evaluation process. This increases transparency and outreach of the evaluation results. A recommended good practice is to write a citizens' summary of the main findings of the evaluation. Given that AKIS in Member States involves a large number and variety of actors, such a summary is a simple and attractive way to reach all members of the AKIS system. The evaluation results can also be presented and discussed in workshops and other events in the context of the EU CAP Network.

Furthermore, in order for the evaluation to be useful to AKIS actors, a follow-up procedure of the evaluation findings and recommendations may be established. For example, the utilisation of the evaluation findings can be regularly put on the MS's AKIS coordination body agenda, with a timetable for the follow-up of findings. The MA and AKIS coordination body may develop and implement a strategy and process for following up the evaluation recommendations and therefore also feed into the future policy design.

[46] An update of AKIS reports in Member States is planned by 2023.
[47] Grovermann et al., 2017.
[48] Ibid

6. Stakeholder involvement at different stages of the evaluation

The application of the theory of change proposed in these guidelines as the overall evaluation approach of the AKIS strategic approach relies on principles that include a collective learning and empowerment process and a utilisation focussed approach. The former principle implies a participatory/ interactive process while the latter relies on the active and early engagement of intended users during the evaluation process. Stakeholder involvement is therefore expected at all stages of the evaluation. However, the degree of involvement of the different typologies of stakeholders, by different roles and stages of the evaluation, may vary according to their needs. In this regard, it is fundamental to define, from the very beginning (preparing stage of evaluation), who to involve, when and how and to do so along an open path of stakeholders' involvement[49] For example:

- Some actors are fundamental from the beginning to the end, notably the MA, which is responsible for the evaluation, as well as evaluators that will carry out the evaluation. In addition, the AKIS coordination body is the main implementer of the AKIS strategic approach.
- Other stakeholders have a role during the 'Preparation' phase, in supporting the MA and evaluators to review the intervention logic. The Monitoring Committee or the establishment of a Steering Group or an Advisory Group to evaluate the AKIS strategic approach may support in this task.
- When the theory of change is developed ('Structuring' phase), a wider participatory approach is required. For instance, the evaluator will guide the actors to describe the expected results of the AKIS interventions and their combination, and to build collective learning. The selection of these actors is of key strategic relevance and their level of involvement related to the design of this participatory approach needs to be considered. In addition to the MA, institutional bodies related to AKIS, education and research institutions may participate in the introductory qualitative analysis of the theory of change. There may also be contributions from the national EIP point or in the form of the opinion of the CAP Network.
- Still in the 'Structuring' phase, other institutional bodies of the CAP SP may be consulted when defining the evaluation framework, consisting of evaluation questions that reflect priority elements to address factors of success, indicators and data sources. Additionally, institutional bodies from other policies/funds may participate here. For instance, in designing the evaluation framework for complementarity, institutional bodies from other policies may be consulted. Finally, data providers (e.g. Paying Agencies, holders of databases such as the FADN) are pertinent when reviewing data requirements and data collection needs.
- All actors that can participate in interviews, focus groups and other participatory methods to collect evidence as well as data providers for quantitative data, are critical during the 'Observing' phase, which is when the field work is conducted. They may include beneficiaries (e.g. farmers, foresters, OG members), actors that have a multiplier/linkage role (e.g. advisors, innovation brokers), actors involved in research and education, as well as national and regional networks (e.g. national CAP Network, EIP) and institutional actors.
- During the 'Analysing' phase, the evaluators and ultimately the Managing Authority, are responsible for calculating indicators and analysing all the information collected in the previous phases.
- Finally, key stakeholders in the 'Judging' phase, in addition to the Managing Authority and evaluators who produce conclusions and recommendations, include those that play a role in implementing policy and informing future policy (e.g. CAP SP institutional bodies, Monitoring Committee, AKIS coordination body) while the networks can play a role in disseminating and communicating the evaluation results. The Managing Authority and the AKIS coordinating body would also play a role in the follow-up of recommendations to ensure that they are taken up and fed into future policy design.

7. Practical example of the suggested approach

This is a fictional case developed to demonstrate how one of the evaluation elements of the AKIS strategic approach could be applied in practice on a step by step basis. Several practices observed in Member States are used for the development of this example.

The **evaluation element** used in this example is: **Strengthening farm advice and fostering all advisors' interconnection within AKIS**.

Brief introduction of the case:

Under the action plan of the CAP Network, the Managing Authority planned a mix of interventions aiming at strengthening farm advice and fostering all advisors' interconnection within AKIS. These AKIS-related interventions are:

- Networking activities by the CAP Network (e.g. innovation brokerage events, innovation days) that engage the advisors to interconnect with researchers and academics and gain new knowledge;
- Training for advisors with a particular focus on methods and tools for facilitating innovations, assessing needs and demand for farm advice and on other topics of farming systems and agriculture;
- Set-up of a network of advisors that provides holistic advisory services to farms, including technical assistance and Innovation Support Services;

[49]Guijt, I. (2014). Participatory Approaches, Methodological Briefs: Impact Evaluation 5, UNICEF Office of Research, Florence. Retrieved from: http://devinfolive.info/impact_evaluation/img/downloads/Participatory_Approaches_ENG.pdf

- Set-up of a back office for advisory services at local level, composed of a network of advisors, researchers, academics and educators;
- Peer-to-peer actions with advisors to review practices on the facilitation of innovation;
- Promoting the use of advisory services by farmers/foresters and rural SMEs through a wide range of typologies of services (e.g. set-up and operationalisation of advisory bodies, use of advisory services on current/relevant issues, use of global management services and use of farm relief services).

The disbursement of funding on these interventions will follow the simplified cost option approach in order to reduce the paperwork involving proofs of payment and increase the efficiency of expenditure reporting procedures. This will facilitate the access of advisors to AKIS-related CAP interventions.

This mix of interventions aims to address the following needs:

- To improve the interconnection of advisors within the AKIS (rather poor currently);
- To improve and better target the skills and capacities of advisors to the needs of farmers, foresters and SMEs;
- To enable the facilitation of innovations within the AKIS (currently, there are poor capacities, especially in terms of facilitation methods and tools).

As a consequence of implementing these interventions, the following changes are expected:

A. More consolidated interconnections of advisors within AKIS;

B. Increased skills and capacities for farmer-led approaches by enlarging the scope (topics), methods and tools of advisory;

C. Increased capacities to facilitate innovation.

7.1 Planning phase of the evaluation

The 'Planning' phase involves the following steps, which are described in more detail below:

- Select the type of evaluation according to the Evaluation Plan;
- Select the evaluator;
- Set up institutional arrangements for evaluations of the AKIS strategic approach (Steering Group, evaluation stakeholders);
- Develop a communication plan for evaluation.

According to the Evaluation Plan in this fictional case, an **evaluation of the AKIS strategic approach during the implementation period (ongoing evaluation)** is scheduled to start during the 2nd year (2024) of the implementation of the CAP SP and to end up with the ex post stage (2031). This ongoing evaluation will include thematic evaluations to be decided on an ongoing basis and according to the stage of implementation of the planned interventions and the specific needs of the stakeholders.

The thematic evaluations of the AKIS strategic approach will be **outsourced to one independent evaluator** by the Evaluation Unit of the of the CAP SP.

A **Steering Group for Evaluation** has been appointed by the Managing Authority, consisting of:

- AKIS coordination body
- Someone responsible for the implementation of the overall AKIS strategic approach and the different types of interventions:
- Someone responsible for implementing the different AKIS-related interventions
- CAP Network - Responsible for innovation support
- Evaluation Unit coordinator
- An advisor/Innovation Support Service provider or a representative of professional organisations.

The responsibilities of the Steering Group were defined as follows:

A. Articulation of the demand for evaluation for the overall AKIS strategic approach and for each of the thematic evaluations dealing with the evaluation elements;

B. Provision of an expert opinion on the quality of the evaluation processes and reports;

C. Support the follow-up of the evaluation results.

The Evaluation Unit defined key typologies of **stakeholders** to be involved during different evaluation phases. The following stakeholders were identified as the most relevant: CAP Networks; farmer-based organisations, representatives of advisors and their organisations, MA and its staff, including the AKIS coordination body, representatives of trainers and educators, research bodies and academia, partners of OGs and other beneficiaries of AKIS-related interventions, representatives from other relevant ministries (e.g. education, culture, research, digital transformation, environment). These stakeholders will be involved during the different stages of evaluation according to the methods and tools defined by the evaluator.

Finally, a **communication plan** was developed by the Evaluation Unit, with the overall aim of maximising the use of evaluation results, particularly:

- Increasing awareness about the AKIS strategic approach, its implementation and its contribution to strengthen AKIS among relevant actors, including awareness about:
  - the contribution of well-skilled and better interconnected advisors within AKIS to sustainable agriculture;
  - the effects of the implemented actions relating to strengthening the advisors and their interconnections within AKIS.
- Capturing and learning from barriers/weaknesses of implemented actions relating to strengthening the advisors and their interconnections within AKIS;
- Disseminating good practices with regard to strengthening the advisors and their interconnections within the AKIS.

The communication plan also states that all the communication and dissemination actions on the evaluation will be published on the CAP SP web portal, the CAP Networks (national and EU levels) will be updated about the evaluation processes and that communication and dissemination will be coordinated with the general communication and dissemination strategy and periodic action plans of the CAP SP.

The first meeting of the Steering Group, organised by the Evaluation Unit of the MA, decided that the first **thematic evaluation** will focus on: 'Strengthening farm advice and fostering all advisors' interconnection within AKIS'. This decision was based on the state of play of the interventions and the needs for knowledge of the MA.

7.2 Preparing for evaluation

The second meeting of the Steering Group defined the objectives of the above thematic evaluation and the requirements for the evaluator. These were translated into the Terms of Reference for the evaluator.

7.3 Structuring the evaluation

Based on the Terms of Reference, the evaluator proposed an **evaluation design**, as set out in the following table.

Table 7. Key elements of the evaluation design

Topic	Actions relating to strengthening the advisors and their interconnections within AKIS
Objectives of the evaluation	Drawing useful conclusions, recommendations and insights on the strategic approach and delivery of actions relating to 'Strengthening farm advice and fostering all advisors' interconnection within AKIS'. Learning lessons for use in the next programming period. Obtaining evidence, drawing conclusions and drafting recommendations about the effectiveness, the efficiency and good practices on the actions taken under the CAP SP to strengthen the interconnectivity of the advisors within the AKIS.
Timeframe	Ongoing evaluation (2024-2031), supported by yearly evaluation reports.
Content of the evaluation	Evaluating the contribution of the AKIS strategic approach to strengthen the advisors and their interconnections within AKIS. Identifying good practices and barriers/weaknesses relating to strengthening the advisors and their interconnections within AKIS. Evaluation of the effects of the CAP SP to reinforce the skills and capacities of advisory services, to facilitate innovation and to address farmers'/foresters'/rural SMEs' needs for advice.
Reporting	Inception report, including the overall design of the evaluation and evaluation framework. Yearly reports: › Interim report by mm/yy › Final report by mm/yy The final report will be complemented with: › A technical summary of the evaluation in the national language and in English; › A brochure/leaflet of the evaluation in the national language and in English for the wider public; › A webinar with the stakeholders; › Presentations at the Monitoring Committee; › Presentations at CAP Networks' workshops (national and EU level). Other forms of reporting envisaged by the communication and dissemination plan for evaluation.

Data quality management	Compliance with the EU's General Data Protection Regulation (GDPR). Quality management standards being applied to ensure good quality management and security. Release of collected data to the MA (interoperability database).
General requirements	Compliance with relevant EU regulations (Basic Act and Implementing Regulation). Consistency with the CAP Network(s) guiding documents. Compliance with national laws/rules on evaluation.
Conditions to ensure data availability	Secondary data to be available fully and on time from the Paying Agency to enable the evaluator to calculate the common output and result indicators. In case of lack of baseline data and indicators regarding the state of play of the topics, methods and tools applied by the advisors will be tackled with the help of the CAWI[50] tool in 2024. In case of lack of baseline data and indicators regarding the state of play of the interconnection of the advisors within AKIS, this will be tackled by the use of Social Network Analysis and knowledge maps during 2024.

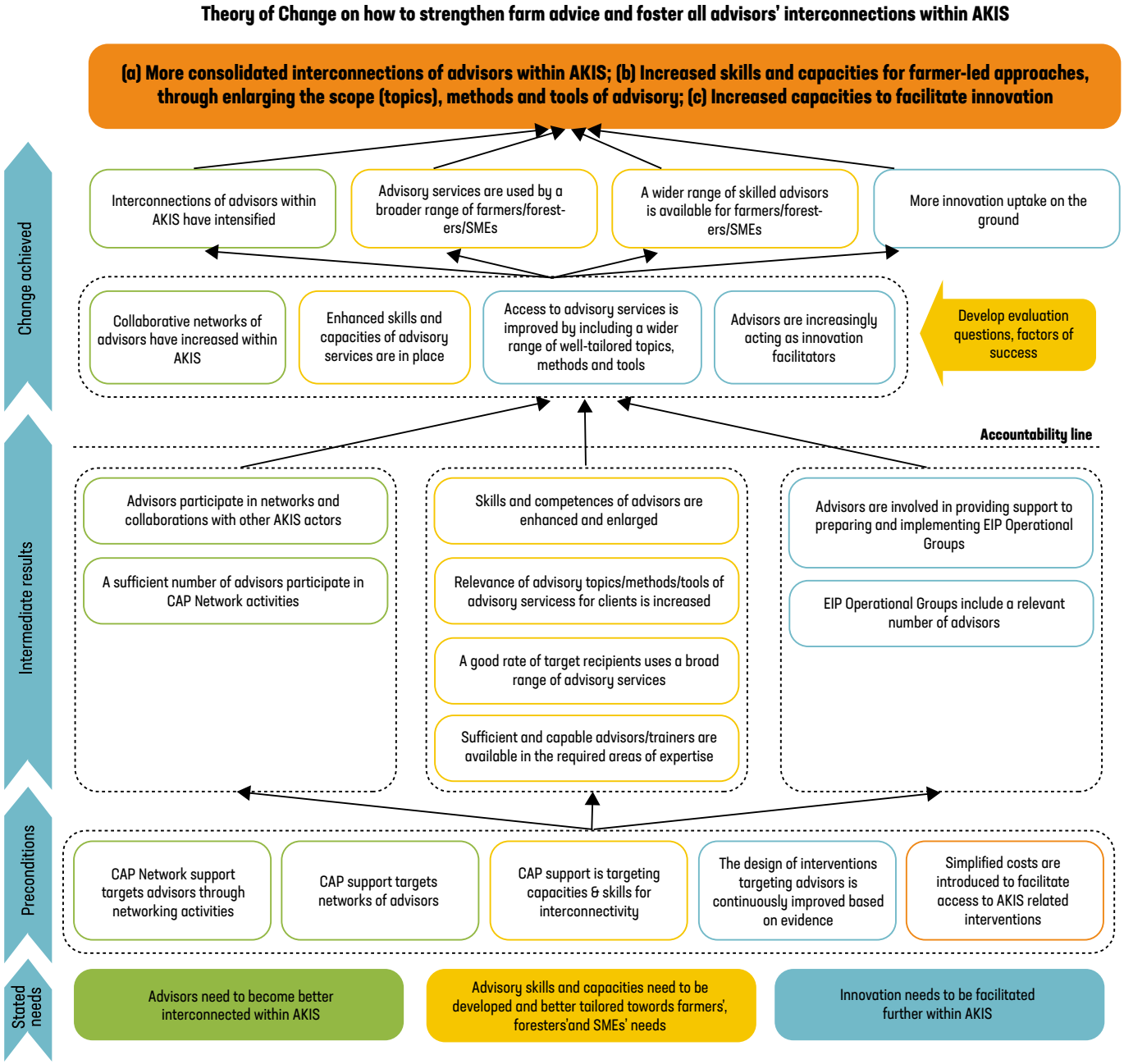
Several meetings between the evaluator and the Evaluation Unit, the Paying Agency, the Monitoring Unit and the Evaluation Steering Group provided input for the review of the evaluation design and ensured collaboration in the provision of the necessary data as well as the identification of potential data gaps and solutions to address them.

The meetings also allowed the evaluator to review the intervention logic of the actions related to strengthening the advisors and fostering their interconnection within AKIS and to develop the impact chain using the theory of change approach (depicted in the figure below). Working steps included:

- Collecting evidence on the stated 'problems' or 'needs' that justify the choice of interventions (bottom of the figure);
- The identification of 'preconditions' that need to be in place for the results to be achieved (second level in the figure). For instance, the CAP Network is targeting advisors through networking activities that facilitate their interconnection with researchers and academics to gain new knowledge;
- The identification of 'intermediate results' that are expected to be achieved (third level in the figure). For instance, a high proportion of advisors participate in networking activities;
- The description of the expected 'change to be achieved' as a consequence of the intermediate results (fourth level in the figure). For instance, enhanced capacities of advisors as a result of participation in networking activities.

[50]Computer-assisted web interviewing (CAWI) is an Internet surveying technique in which the interviewee follows a script provided on a website.

Figure 4. Theory of change reviewed during the evaluation



Source: European Evaluation Helpdesk for the CAP (2023)

Based on the impact pathway of the theory of change approach, the evaluator developed the evaluation framework, consisting of a list of key elements to assess, evaluation questions, factors of success and indicators (see table below).

After the meeting, the evaluator reviewed the evaluation design by including the adjustments that emerged during the meeting with the Steering Group (see table 8).

Table 8. Evaluation framework for assessing 'farm advice and fostering all advisors' interconnection within AKIS'

Strengthening farm advice and fostering all advisors' interconnection within AKIS:			
Overarching evaluation question: To what extent have AKIS **interventions contributed to strengthening farm advice** and fostering all advisors interconnection within AKIS?			
Key elements to assess	**Evaluation questions**	**Factors of success**	**Indicators**
Strengthened use of vocational training and peer-to-peer learning paths for advisors and farmers.	To what extent have the AKIS-related interventions fostered the participation of advisors to vocational training and peer-to-peer learning activities?	An increasing number of advisors participate in vocational training and peer-to-peer learning.	› Number of peer-to-peer and vocational training actions that involve advisors (% on target). › Number of advisors participating in peer-to-peer learning and training activities (% on target). › Frequency of training and skills upgrading (by type of skills) for advisors (baseline 2023; update 2026). › R.2 Number of advisors receiving support to be integrated within AKIS.
Access to (impartial) advisory services, through a broader range of topics, methods and tools.	To what extent have AKIS-related interventions contributed to the increased access to advisory services for farmers/foresters/ SMEs?	The use of advisory services by famers/ foresters/SMEs through a broader range of topics, methods and tools has increased	› Number/range of farmers/ foresters/SMEs using advisory service
Collaborative networks of advisors within AKIS.	To what extent has the CAP supported the engagement of advisors in collaborative networks with other advisors and other actors within AKIS?	The number of networks/ collaborations of advisors has increased.	› Number of collaborations/joint actions between advisors and other typologies of AKIS actors (e.g. researchers, CAP Networks, education and vocational bodies) to offer improved support to farmers/foresters.
Use of methods for assessing the demand for farm advice (i.e. the needs of farmers to receive advice).	To what extent have AKIS-related interventions contributed to increase the methods for assessing the needs of farmers for advice?	The number of methods for assessing the demand for farm advice (i.e. the needs of farmers to receive advice) has increased.	› Number of practices/ approaches for satisfaction assessments of advice put in place on a regular basis. › Qualitative assessment of the satisfaction of advice provided.
Participation of advisors in EIP Operational Groups (OGs)	To what extent are advisors involved in EIP OGs?	The actions by advisors supporting OGs have increased. An increasing number of advisors participates in EIP OGs as innovation facilitators.	› Number of advice actions to provide innovation support for preparing or implementing EIP OGs. › Number of advisors in EIP OGs.
The role of the CAP Network in supporting the inclusion and the interaction of the advisors within AKIS.	To what extent has the CAP Network contributed to better interconnection of advisors within the AKIS?	The inclusion of and interaction of advisors within AKIS has increased because of CAP Network actions.	› Number of CAP Network actions that include advisors. › Number of advisors participating in CAP Network activities.

7.4 Observing phase of the evaluation

The evaluation team developed tools for collecting relevant data and information, as required by the evaluation framework:

- A database for collecting the quantitative and qualitative information needed and a data collection planning matrix (see table 9) to map the data/information fields, collection methods, tools and sources in relation to the indicators.
- A questionnaire for surveys, interviews, focus groups and Social Network Analysis.
- A database of stakeholders based on the administrative data provided by the Managing Authority on beneficiaries and CAP SP stakeholders (secondary data). Further stakeholder analysis was conducted by the evaluator to achieve a complete/ comprehensive list of relevant stakeholders.

Then, the evaluator followed some key steps:

- Appraisal of the state of play of the different actions in order to assess which data and information was already available;
- Secondary data and information collection related to the calls for applications and the implementation of the supported actions (date of published calls, deadlines, including possible postponements, real commitments, start and end dates of the relevant activities), using the different methods and tools shown in Table 9;
- Secondary data collection from the Paying Agency related to expenditures and other relevant financial data;
- Primary data collection from beneficiaries through survey and focus groups (based on contacts provided by the Paying Agency and respecting data protection issues);
- Implementation of the **Social Network Analysis** method.

The collection of primary and secondary data and information made it possible to define the baselines on the current state in relation to the key elements to assess (see evaluation framework).

During this exercise, the evaluator applied quality checks and assessed knowledge gaps, possible inconsistencies – (e.g. lack of detailed information on advisory methods and tools applied to supported advisory actions; lack of detailed information on advisory topics) and mitigation actions (e.g. implementation of direct surveys/ interviews with advisors) and discussed them with the Evaluation Unit and the Paying Agency.

7.5 Analysing phase of the evaluation

The information collected in the 'Observing' phase was used to calculate the relevant indicators and develop relational diagrams using the SNA method. Knowledge mapping was also used to visualise the state of interconnections of the advisors within AKIS. Some first findings relating to key factors of success and answers to evaluation questions were elaborated. The analysis of the data and information showed, among other things:

- A certain number of advisors are strongly linked with some research bodies because of different types of collaborations that help consolidate relations over time;
- On the other hand, the links with academia look much weaker and occasional;
- Advisors have been found to play an innovation brokerage role in certain OGs;
- Participation in OGs has helped advisors access training and peer-to-peer reviews, which have increased their capacities to facilitate innovation.

A meeting with the Steering Group allowed evaluators to gather useful views on the findings that helped develop the answers to the evaluation questions in the next phase.

7.6 Judging phase of the evaluation

As part of the 'Judging' phase, the evaluator team compiled the analysis and drafted answers to the evaluation questions for each key element to assess. These in turn helped provide an answer to the overarching evaluation question: 'To what extent has the AKIS strategic approach strengthened the advisory services and their interconnections within AKIS?'. Answers included indicator values that provided evidence about the achievements of CAP support in relation to advisory services through the mix of AKIS-related interventions.

The evaluator organised a focus group with the key stakeholders to discuss the findings and validate them based on the theory of change impact chain developed at the 'Structuring' phase. Some recommendations emerged, for instance:

- Increase the focus of training and peer-to-peer activities for advisors on the topic of innovation, so they become better equipped to contribute to innovation processes;
- The involvement of advisors with innovation facilitation skills should become a precondition for the implementation of OGs.

The outcome of the 'Judging' phase was an evaluation report with conclusions and recommendations as well as an action plan for the follow-up of these recommendations.

Table 9. Information collection planning matrix (with some examples from the above indicators)

Indicator	Data/Information needed	Source (subject and type of source)		Collection method/tool	State of play
Number of peer-to-peer and vocational training actions involving advisors.	Number of peer-to-peer actions target / supported. Number of vocational training actions target / supported. Total expenditure (target/ realised).	MA/Paying Agency	*Call for applications and administrative files on supported actions for: Training, peer-to-peer, actions.*	Query to MA/Paying Agency	Yearly
Number of advisors participating in peer-to-peer and training activities.	Number of advisors in training activities.	MA/Paying Agency	*Call for applications and administrative files on supported actions for: Training, peer-to-peer.*	Query to MA/Paying Agency	Yearly
R.2 Number of advisors receiving support to be integrated within AKIS.	See indicator fiche. Support by types of action (training, advisory services, peer-to-peer activities, partnering in OGs).	See indicator fiche	*Call for applications and administrative files on supported actions for: Training, peer to peer, participation in OGs, participation of advisors and researchers in networks, participation in CAP Network activities.*	See indicator fiche	See indicator fiche
Number of collaborations/ joint actions applied between the advisors and other typologies of AKIS actors to offer improved support to farmers/foresters.	List of networks set up by advisors and other AKIS actors.	MA/Paying Agency	*Call for applications and administrative files on supported actions for: participation in/facilitating OGs, participation in networks of advisors and researchers/educated/ vocational bodies.* *CAP Network activities (annual action plan/ report).*	Query to MA/Paying Agency	Once during the
Number of advice actions to provide innovation support for preparing or implementing EIP OGs.	List of actions for preparing and implementing OGs, by type.	MA	*Call for applications and administrative files on supported actions.*	Query to MA/Paying Agency Interviews/focus groups with OGs	Yearly
Number of advisors in EIP OGs.	Typology of actors in OGs, of which, number of advisors.	MA/Paying Agency	*OG applications and project plans.*	Query to MA/Paying Agency	Yearly
Number of CAP Network actions that include advisors.	CAP Network list of activities and content.	MA/ national CAP Network	*CAP Network reports.*	In depth interviews	Yearly

Annex 1 – A short history of AKIS - Literature Review

The origins of AKIS can be traced back to the 1960s as a critical response to the linear technology transfer model exemplified in the National Agricultural Research System (NARS), which is defined as "the entities responsible within a given country for organizing, coordinating, or executing research" aiming at the agricultural development and modernisation of a certain country.[51]

1960s

During this time, the **Agricultural Knowledge System (AKS)** approach was conceptualised as a strongly integrated collection of actors, such as researchers, advisors and educators, working primarily in agricultural knowledge institutes and then transferred to the agricultural sector through agricultural extension services and education[52].

AKS was government-driven as it reflected the interventionist agricultural policy model aimed at accelerating agricultural modernisation organised according to the linear model of knowledge transfer (from scientists to farmers through extension services) but it emphasised the process of knowledge generation and the inclusion of actors outside the research, education and advice sectors[53].

1990s

In the 1990s, the concept of **Agricultural Knowledge and Information Systems (AKIS)** was formulated by Röling and Engel (1991) to describe "a set of agricultural organisations and/or persons, and the links and interactions between them, engaged in the generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information, with the purpose of working synergistically to support decision making, problem solving and innovation in agriculture".

2000s

This concept evolved into Agricultural Knowledge and Innovation System (AKIS) in the early 2000s, where the 'I' for 'Information' became 'I' for 'Innovation' and reflected a more systems view of innovation[54]. This also marked a transition to a more open, inclusive and coordinated system where new knowledge and innovations are co-produced by "a network of organisations, rural entrepreneurs, such as farmers and others, as well as consultants, policy makers, supplier and processing industries, and other actors focussed on bringing new products, processes or new forms of organisation into economic use (innovation processes), together with the institutions and policies that affect the way agents interact, share, access exchange and use knowledge"[55].

European policy started to engage with AKIS around this time as the concept shifted the focus from the plurality of sources of knowledge to the interaction between different actors in the innovation process. This takes advantage of the respective codified (researchers/academics) and tacit (practitioners) knowledge to develop new knowledge and innovation on a continuous basis, by emphasising the need to foster feedback linkages among the wider range of actors and to generate mutual learning, sharing and use of new technologies, knowledge and innovation. Concepts and paradigms at the heart of AKIS are system thinking, lifelong learning, non-linear and interactive models, multi-actor and network-driven innovations. Besides, it is recognised that the functioning of AKIS is very frequently characterised by disconnections in knowledge flows that impede learning and hamper effective research and innovation[56]. In fact, the plurality of actors in AKIS is a reflection of the different perspectives and (competitive) expectations. The actors need to be stimulated with incentives to connect with each other.

This resulted in conceptualising AKIS as a network with non-hierarchical nodes. This, in turn, implies the need for innovation policies, which must be context-aware, i.e. well-defined in terms of space, time and socio-economic and cultural context, and making choices to support innovation loops, in terms of institutional infrastructure, funding mechanisms, network characteristics and creating a market based on an enabling environment for a well-developed AKIS[57].

AKISs are multiple: They can differ from country to country and even within a country, as they reflect specific social, environmental, geomorphological and cultural aspects of contextual situations.

In addition, there is the concept of the **Agricultural Innovation System (AIS)**, mostly in use by international organisations (e.g. Food and Agriculture Organisation (FAO), Tropical Agricultural Platform and World Bank). It is defined as "a network of organisations, enterprises, and individuals focussed on bringing new products, new processes, and new forms of organisation into economic use, together with the institutions and policies that affect the way different agents interact, share, access, exchange and use knowledge"[58]. It seems to focus more on innovation and less on knowledge as it is meant to be more oriented to provide directions for innovation policies and for structuring research, education and advisory services[59]. As a matter of fact, the differences between AIS and AKIS within European policies are very much narrowed and we can consider the two of them interchangeable.

These different concepts are developed following the paradigms in agricultural development (e.g. productivist, constructivist, systemic, circular, sustainable development, and others)[60] that have emerged over time.

[51]World Bank, 2012.
[52]Rudman, 2010; SCAR AKIS, 2012.
[53]Leeuwis and Van den Ban, 2004.
[54]Smits et al., 2010.
[55]Hall, 2007; Knickel et al., 2009.
[56]Dockès et al., 2011.
[57]Dockès et al, 2011; SCAR AKIS, 2012.
[58]Leeuwis and Van Den Ban, 2004.
[59]Toillier et al., 2018.
[60]Dockès et al., 2011.

Table 10. Features/Differences of AKIS conceptualisations

Features	NARS	AKIS ('I' = information)	AKIS ('I' = innovation)/AIS
What	Organising framework for planning capacity for agricultural research, technology development and transfer.	Organising a framework to strengthen the capacity to innovate and create novelty throughout the agricultural production and marketing system.	Organising a framework for strengthening communication and knowledge delivery services to people in the rural sector.
Purpose	Planning capacity for agricultural research, technology development and technology transfer.	Strengthening communication and knowledge delivery services to people in the rural sector.	Strengthening the capacity to innovate throughout the agricultural production and marketing system.
Who	› National Agricultural Research Organisations › Agricultural universities or faculties › Extension services › Farmers	› National Agricultural Research Organisations › Agricultural universities or faculties › National Agricultural Research Organisations › Agricultural universities or faculties › Extension services › Farmers › NGOs and entrepreneurs in rural areas	Potential of all actors in the public and private sectors involved in the creation, dissemination, adaptation and use of all types of knowledge relevant to agricultural production and marketing.
Intended outcome	Technological invention and technology transfer.	Combinations of technical and institutional innovations throughout the production, marketing, policy research and enterprise domains.	Technology adoption and innovation in agricultural production and marketing in rural areas; Enhanced capacities to innovate.
Organising principle	Using science to create knowledge (Invention-driven).	Accessing agricultural knowledge (Invention-driven).	New combinations/uses of tacit and codified knowledge to create social and economic change (Innovation-driven).
Theory of innovation	Transfer of technology	Interactive learning	Interactive learning
Degree of market integration	Nil	Low	High
Role of policy	Resource allocation; priority setting.	Resource allocation; priority setting; creation of enabling framework based on stakeholder consultation.	Integral part of innovation system; strengthening enabling environment and support system coordination.
Nature of capacity strengthening	Infrastructure and human resource development.	Strengthening communication between actors in rural areas.	Same as NARS and AKIS and in addition: Combination of: strengthening linkages and interaction; institutional developments to support interaction, learning and innovation, the creation of an enabling policy environment.
Paradigms of agricultural innovation	Transfer of knowledge (up to the 1960s)/Farming Systems Research (up to the 1980s).	Farmer First/Farmer Participatory Research (from the 1990s).	Interactive Learning for Change/ Innovation Systems (from the start of the 2000s).
Role of the farmers	Learn, adopt, conform, provide information for scientists.	Diagnose, experiment, test, adapt	Co-generate knowledge, processes and innovation.
Innovators	Scientists	Farmers and scientists together	Potentially all actors within the system.

Source: Adapted from Hall (2007), World Bank (2006) and Dockès et al. (2011).

Annex 2 – conceptual framework of AKIS

2.1 Key concepts of AKIS within the CAP

The conceptualisation of AKIS highlights some key components that, if well-organised and functioning, create an enabling environment for innovation and systemic change on a continuous basis. In the light of the CAP in the 2023-2027 period, these components should be organised well by using a strategic approach to create the conditions leading to the modernisation of the sector and rural areas and to the achievement of the CAP's SOs. To gain a better understanding of these key components and their relevance for evaluation, they are explained below.

Evaluating AKIS within the CAP framework implies understanding how this support is going to affect actors, infrastructures, institutions and how they interact towards innovations and system change, based on the development of capacities for innovation.

In this regard, due to the dynamic nature of AKIS, it is fundamental to gather baseline information about key components of AKIS at an early stage of the policy/programme design (e.g. AKIS strategies in CAP SPs). This baseline information will serve later during the evaluation of AKIS in the context of the CAP SPs.

The system

AKIS inherently encompasses a system where actors and their environment are linked by mutual embeddedness[61] since a system is a "collection of components that are structurally coupled by interaction patterns and each system is a component in a larger system and each component of a system is a system in itself"[62].

In this regard, AKISs are recognised as complex and adaptive systems that reflect evolving social environments that are characterised by path dependency, interactions, feedback loops and emergence[63] and, where co-evolutionary processes take place based on the combination of technical, social, economic, organisational and institutional change[64].

Relevance for evaluation: To understand the extent to which a system approach is effectively in place within the AKIS in Member States and whether an overall strategic approach shapes the combination of the different types of CAP interventions. This would allow weaknesses and threats to be overcome and to take advantage of strengths and opportunities to address needs for change and contribute to well-functioning and, ultimately, reinforced AKIS in Member States.

The context-sensitiveness

AKIS reflect the socio-economic and environmental context in which they evolve. This implies the co-existence of a plurality of AKISs that might differ according to the geographic level (country/regional/sub-regional); the sectoral level (sector/sub-sector); the position in the value chain (along the value chain or at farm level).

Relevance for evaluation: To select the level of analysis (from the various geographic, sectoral levels, etc.) and provide a justification for it. For instance, the assessment of the effects of the CAP Strategic Plan AKIS interventions in a specific key sector of the regional or national economy.

The actors

One of the key features of AKIS is the plurality of its actors, both individuals and organisational/institutional bodies. Each of these actors can play a certain role and have a certain function in AKIS, reflecting the specific socio-economic, cultural and political context in the territory (Member States) where AKIS is functioning. AKIS as a system is open to this plurality of actors, who are assigned a role and function within the system to make best use of complementary types of knowledge (scientific, practical, organisational, etc.) in view of co-creation and the quick dissemination of solutions/opportunities that are ready to be implemented in practice.

As the context evolves, so does the composition of the actors in the AKIS system. For example, in the framework of the current CAP policy, new entrants are actors who are experts in the development, the provision and technical support on digitalisation.

Relevance for evaluation: To map the actors involved in a specific AKIS, to be used as a baseline when analysing the effects of the CAP on the links, knowledge flows and other interactions between them.

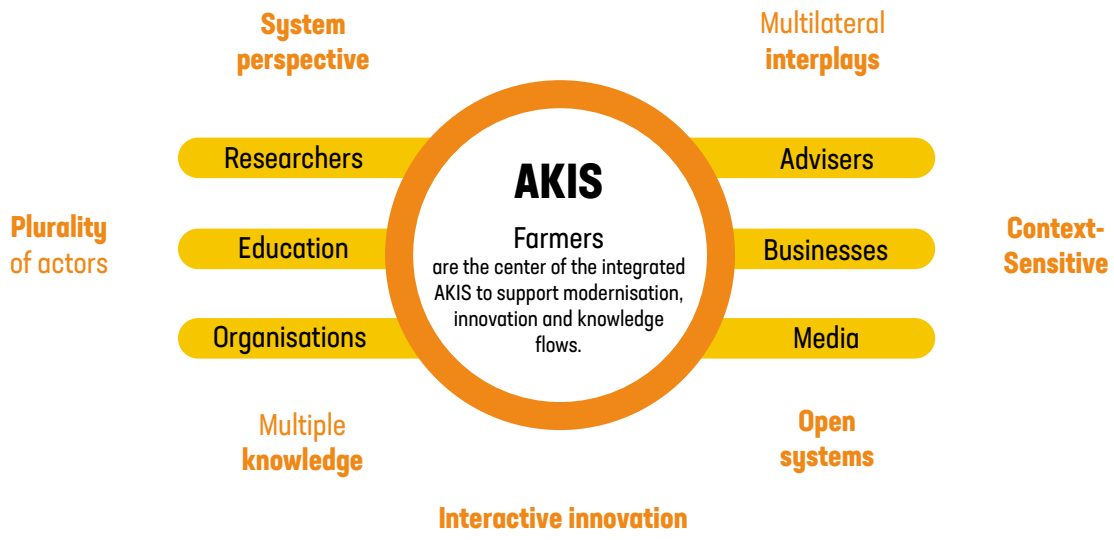
[61]Markard, J., & Truffer, B. (2008). Technological innovation systems and the multi-level perspective: Towards an integrated framework. Research Policy, 37(4), 596-615. https://doi.org/10.1016/j.respol.2008.01.004

[62]Knierim, A., Boenning, K., Caggiano, M., Cristóvão, A., Dirimanova, V., Koehnen, T., Labarthe, P., & Prager, K. (2015). The AKIS concept and its relevance in selected EU member states. Outlook on Agriculture, 44(1), 29-36. https://doi.org/10.5367/oa.2015.0194

[64]Douthwaite, B., Mayne, J., McDougall, C., & Paz-Ybarnegaray, R. (2017). Evaluating complex interventions: A theory-driven realist-informed approach. Evaluation, 23(3), 294-311. https://doi.org/10.1177/1356389017714382

[65]Smits and Kuhlmann, 2004; EU SCAR, 2012; Klerkx et al., 2012.

Figure 5. Key concepts and paradigms of AKIS within the CAP



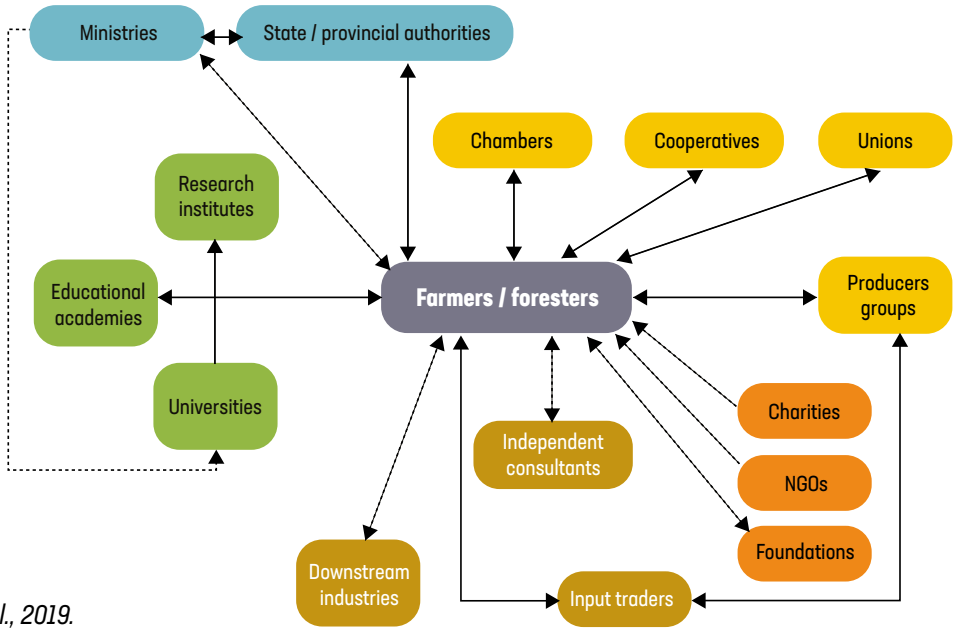
Source: Adapted from EU SCAR AKIS (2019). Preparing for future AKIS in Europe.

As mentioned earlier, AKISs are characterised by a plurality of actors. An exemplary, not necessarily exhaustive, list of actors within an AKIS is provided by Knierim et al. (2019), based on the broad distinction of five types of actors[65] as follows: (colours with reference to Figure 6):

- Public sector organisations (ministries and subordinated public administration; in blue),
- Research and education (universities, research institutes, schools; in green),
- Private sector (industries, independent consultants and advice-providing companies; in brown),
- Farmers and farmer-based organisations (chambers of agriculture, cooperatives, farmers' unions in yellow),
- Non-governmental organisations (for example, charity organisations, environmental groups; in orange).

This distinction was used for the configuration of AKISs across the EU carried out for the purpose of the PRO AKIS FP7 (2012) and i2connect H2020 (2020) European research projects[66].

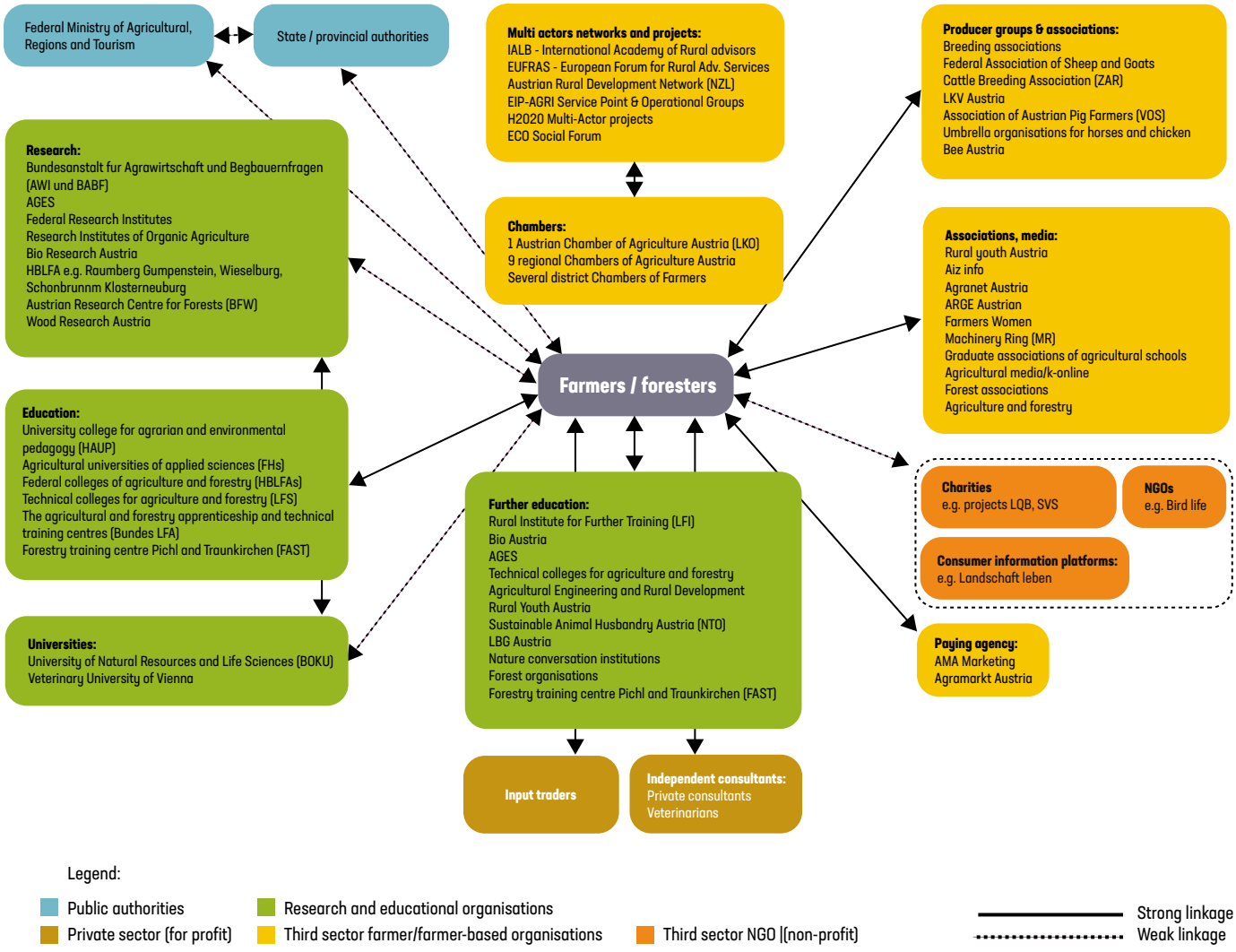
Figure 6. Example of an AKIS diagram



Source: Knierim et al., 2019.

[65]Knierim et al., 2015; Birner et al., 2009.
[66]Knierim et al., 2019.

Figure 7. Example of AKIS diagram from Austria



Source: AKIS and advisory services in Austria. Report for the AKIS inventory of the i2connect project, 2020.

What is important to understand about actors is that, in an AKIS perspective:

- Each actor can play a certain role and undertake actions, based on its own capacities/abilities and, also, as a reaction to the specific socio-economic, cultural and political context (e.g. territory, Member State, supply chain) and timing of AKIS.
- Each actor contributes specific and unique knowledge, which is based on its experience and skills. This knowledge has the potential to contribute by re-combining existing and/or co-creating new knowledge within the system. Thus, enabling diverse actors to interact so as to make best use of complementary types of knowledge (e.g. scientific, practical, organisational) is crucial for the co-creation and quick dissemination of solutions/opportunities that are ready to be implemented in practice.
- The multitude and diversity of actors is not fixed and, as the context evolves, so does the composition of the actors in the AKIS system. For example, in the framework of the current CAP, experts in the development, provision and technical support on digitalisation might be new actors that will enter the systems.

Relevance for evaluation: To map the actors involved in a specific AKIS and assess their respective capacities to interact within the system, through triggering, bridging and making use of knowledge flows. This would facilitate the detection of missing actors and the lack of capacities and/or competencies of some actors. For example, the scarce presence of impartial advisors across Europe emerged from a bulk of studies focussed on actors[67]. This is crucial information to use as a baseline when analysing the effects of the CAP in addressing structural weaknesses/threats of AKIS in Member States.

[67]EU SCAR, 2019.

The infrastructures

Knowledge and innovation infrastructures can be broadly referred to as the conglomerate of people, institutions, tools and facilities, which are engaged in the generation, capturing, preservation (organisation, storage, retrieval) and dissemination of different knowledge with the purpose of empowering and extending innovation in EU agriculture[68]. This definition looks both at and beyond research communities by including other types of infrastructures that are different in their nature and functions and are utilised for the benefit of knowledge flows within an AKIS: physical infrastructures (e.g. research/analysis facilities and laboratories; cyber infrastructures; libraries); knowledge infrastructures (e.g. digital infrastructures; networks, clusters and communities; financial infrastructures (e.g. subsidy programmes; banks and credit institutions). In an AKIS perspective, infrastructures are assets of a given AKIS and shape the interactions between the actors and institutions.

Relevance for evaluation: To map the infrastructures and to assess the quality of their functioning in a given AKIS.

Interactions

Interactions mean different forms of relationships and interconnections among the actors, by fostering networking. They are reflected in the dynamism of knowledge flows within an AKIS. The stronger and more intense the interactions within an AKIS, the more this evolves and increases in overall development capacity.

Relevance for evaluation: To capture the interactions and interconnectivity among the different typologies of actors within an AKIS, along with possible weaknesses in terms of absences (e.g. cognitive distance or lack of trust among some actors) and quality (e.g. intensity, nature of interactions) of interactions.

Institutions

Institutions are all forms of organisation, agreements, contracts, explicit/implicit rules and common habits but also language and culture that regulate the interactions among actors[69]. For example, under the CAP SP, the multi-actor approach defines common principles that shape the settlement and implementation of OGs and innovation processes.

Relevance for evaluation: Assessing the presence and capacity of institutions to support or hinder certain interactions among actors.

Knowledge flows

Within the concept of AKIS, knowledge flows are a social process that takes place within cognitive frameworks (paradigms, cognitive rules and regimes) in response to problems, opportunities and challenges.

Knowledge flows reflect the dynamism of an AKIS and encompass the generation, sharing and use of different types of knowledge and their (re)combination, possibly leading to innovation.

Three well-recognised types of knowledge flows can be distinguished and these are[70]:

- **Knowledge co-creation:** This is the process in which multiple actors search together when there is uncertainty about the direction of development, in a co-decision process ('multi-actor').
- **Knowledge exchange:** This refers to sharing and combining existing knowledge. The aim of the solution is (still) unknown.
- **Knowledge transfer:** This occurs when the solution is known but not to a specific target group or their needs, so that they still need to be adapted to its intended use. Transfer refers to the communication of explicit knowledge.

Relevance for evaluation: Identifying the different knowledge flows and typologies occurring among the actors and assessing the capacity of the system to enable the recombination of existing knowledge, creation of new knowledge and innovations.

Innovation

Different models of innovation might be applied within an AKIS according to the needs and approaches of actors, for instance:

- 'Linear innovation models'[71], which stands for a science- and research-driven approach, where new ideas resulting from research are brought into practice through one-way (linear) knowledge transfer and where change and innovation are expected to be engineered. Linear innovation models refer to a transfer of technology and/or knowledge approach where the role of advisors is to provide help in creating awareness about and the adoption of a certain innovation at farm level.

[68]Cristiano S., Proietti P., Augustyn A., Geerling-Eiff F. (2019): Lessons learned on research and innovation for AKIS, in SCAR AKIS (2019) Preparing for Future AKIS in Europe, European Commission, Brussels. (211-247).
[69]Edwards, Tim. 2000. "Innovation and Organisational Change: Developments Towards an Interactive Process Perspective." Analysis https://www.tandfonline.com/doi/abs/10.1080/713698496
[70]Lans et al. (2006) https://edepot.wur.nl/29235; Geerling-Eiff et al. (2006), http://library.wur.nl/WebQuery/wurpubs/fulltext/42190
[71]https://ec.europa.eu/eip/agriculture/en/eip-agri-concept

- Interactive models of innovation emphasise network-driven and user-centred approaches, the plurality of sources of knowledge (actors from different domains and field of expertise) and types of knowledge (scientific/codified/tacit/empirical) along with the process of knowledge recombination (transdisciplinarity) that will possibly result in innovations. Interactive innovation processes are complex and change over time because they depend on the composition of the network of actors within which they run, the different setting of infrastructures and institutions and interaction patterns[72].

Within the CAP and the EIP initiative, the interactive innovation model is promoted, defined as "collaboration between various actors to make best use of complementary types of knowledge (e.g. scientific, practical, organisational) in view of co-creation and diffusion of solutions/opportunities ready to implement in practice"[73].

In 'interactive' innovation, building blocks for innovations are expected to come from a wide range of actors (e.g. researchers, farmers, advisors, NGOs, businesses) in a bottom-up process. Interactive innovation includes existing (sometimes tacit) knowledge which is not always purely scientific. It may also be generated from a group of actors without necessarily having researchers involved.

Relevance for evaluation: To capture innovations and models applied, triggers and boundaries and the extent to which the CAP is boosting innovation in agriculture.

Advice

Similarly to AKIS, the definition of farm advice has occurred with/in different formulations over time and more recently these reflect the debate around the conceptualisation of AKIS.

The definitions provided by Cristopoulos (2010) and Birner (2009) are quite similar and are widely used by recent conceptualisations, by including activities "that should facilitate the access of farmers, their organisations and other market actors to knowledge, information and technologies; facilitate their interaction with partners in research, education, agri-business, and other relevant institutions; and assist them to develop their own technical, organisational and management skills and practices"[74].

Ultimately, under the i2connect project, the definition of innovation advisors has been developed to include activities of innovation intermediaries, brokers or facilitators, as they are defined as agents who assist clients in innovation processes, for example through linking clients to relevant knowledge and actors, and through facilitating the co-innovation process. Here, intermediary activities include: helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator, or go-between, for bodies or organisations that are already collaborating; and helping to find advice, funding and support for the innovation outcomes of such collaborations; and synchronising the expectations of different groups of actors during a number of innovation processes; and mediating in case of conflict[75].

In these definitions, it is worth noting that clients are no longer just farmers, but a variety of actors involved in innovation in rural areas.

Under the CAP, the integration of the advisory services within AKIS is strongly promoted to make more effective and up-to-date their support for farmers' decision-making, articulate demand for support and assist farmers in taking up innovations by helping to bridge research and practice and fostering knowledge flows within the AKIS[76].

Relevance for evaluation: Assessing the extent to which advisory services are integrated within AKIS and playing a key role in bridging the gap between research and practice and helping with the dissemination and scaling up of innovations across the sector and rural areas.

Multiple perspectives in AKIS analysis

Analysing the AKIS in terms of its key elements, for the purposes of evaluation and policy advice, encompasses multiple and complementary perspectives, notably structural, functional, process, capacity development and enabling environment perspectives.

This enables a comprehensive understanding to be gained with regard to by whom, what, which dynamics and towards what a certain AKIS is changing/has changed[77]. Otherwise, there is a risk of narrowing down analysis to one or a few components and functions of AKIS. (See, in Figure 9, the schematic presentation of the multi-perspective analytical framework.)

The structural perspective of AKIS

The structural components of an AKIS are its actors, infrastructures and institutions. The structural perspective refers to the observation of these components at a certain moment by mapping and analysing them in order to ascertain the presence/absence and the roles played within the specific AKIS.

In this regard, it is worth noting that, due to the dynamic nature of multi-actor environments, the diversity and the multitude of actors, infrastructures and institutions that characterise the European AKIS[78], the results of the analyses based on a structural perspective can change over time.

[72]Klerkx, Aarts and Leeuwis, 2010.
[73]https://ec.europa.eu/eip/agriculture/en/eip-agri-concept
[74]Cristopoulos (2010).
[75]Howells (2006); Klerkx & Leeuwis (2008); Klerkx, Hall, & Leeuwis (2009).
[76]SCAR AKIS (2019).
[77]TAP (2016); Toillier et al. (2018); Lamprinopoulou et al. (2014); Cristiano & Proietti (2019); Cristiano et al. (2019).
[78]SCAR AKIS (2015); Knierim et al. (2015).
[79]Knierim et al. (2015); Klerkx, Aarts and Leeuwis (2010).

Therefore, rather than looking for a fixed number of actors, infrastructures and institutions, it is fundamental to reconstruct the agency-structure of an AKIS through the identification and configuration of the actors according to the different modes of interactions, interdependencies, knowledge flows, innovation process and effects that they generate within it in a certain space/environment and moment.[79]

Relevance for evaluation: Clearly identify the actual components of an AKIS to ascertain the presence/absence and the roles played within the specific AKIS.

The functional perspective

The functional perspective on AKIS relates to the dynamism of a certain AKIS, the interactions and processes that take place within it, thus providing an overview on "something that is going on" within AKIS[80]. In this perspective, it is important to identify and configure, at least, the key processes that enable the most important system dynamics and performances to be captured and understood[81]. This exercise would also include drivers, failures and constraints that hinder the smooth operation of the system[82].

In this regard, a bulk of literature[83], based on Hekkert et al. (2007), identifies a set of key functions that are needed in an AKIS. These are knowledge development and dissemination, entrepreneurship, experimentation and innovation take-up, guidance of search and prioritisation based on innovation system visioning, market formation, creation of legitimacy and expectations towards innovations, and resource mobilisation to support innovations. Their sequence is not predefined as it depends on the structural setting (actors, infrastructures and institutions), the power balance put in place for the specific system. Therefore, multiple and different functionality circuits can emerge within an AKIS in relation to different pathways of change.

Relevance for evaluation: Assessing whether all the functions are being performed effectively and by whom, by ascertaining presence/absence of the key functions and identifying possible boundaries of the system, to inform policy-makers about who is acting as 'motor of innovation' and who is lagging behind, as well as assessing the overall functioning of the system.

The process perspective of AKIS

Capturing the dynamics of a specific pathway of change(s) helps in understanding how change occurs within an AKIS, what the enabling factors of this change are and how this contributes to the overall functioning of the AKIS.

A process perspective focuses on a specific pathway of change (e.g. a certain innovation) occurring within an AKIS, to unravel its complexity and understand its evolution along an iterative process of stability, change and reconfiguration of the different components of the system[84].

In the case of the CAP SP, a process view on some OGs may help to identify, for example, good practices or niche innovations[85] that could be adopted along the AKISs. This perspective is also crucial to understand how and under which conditions the processes of scaling in and scaling out innovations can work within a system and contribute to pathways of transformative change of the agricultural systems and rural areas.

Relevance for evaluation: Understanding the models applied in innovation processes along with triggers and boundaries.

The capacity development perspective of AKIS

Capacity development is widely recognised as "the process whereby people, organisations and society unleash, strengthen, create, adapt and maintain capacity to manage their affairs successfully over time"[86]. Applied to the AKIS, this capacity needs to be developed at individual, organisational, inter-organisational and system level in order to activate and sustain pathways of change and innovation processes over time.

A capacity development perspective helps identify strengths, bottlenecks, weaknesses and opportunities arising from the social and human characteristics of the different AKIS actors that ultimately enable or hinder the system capacity to innovate at the different levels[87].

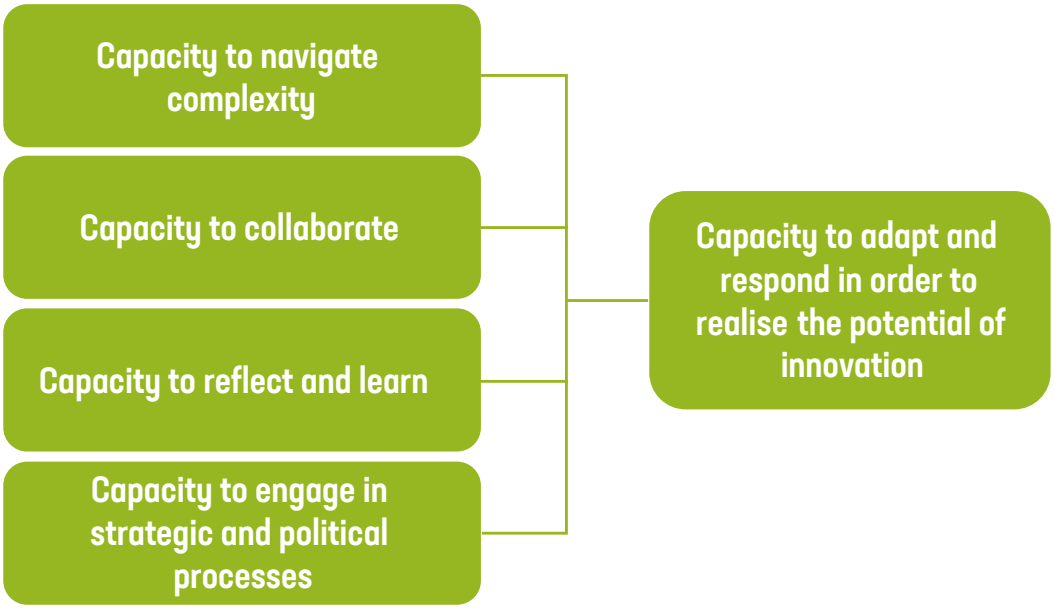
All in all, a well-developed AKIS relies on four plus one key capacities:

- Capacity to navigate complexity (i.e. shift in mindsets, attitudes and behaviour to comprehend the larger system and to create an understanding of the whole system);

[80]Bergek et al. (2012); Introduced by Hekkert et al. (2007) the seven key functions of functional oriented- analysis were firstly and broadly applied to technological innovation systems and then also to the innovation systems (Klerkx et al., 2012; Verburg et al., 2022).
[81]Hekkert et al. (2007); Wieczorek and Hekkert (2012); Musiolik et al. (2012).
[82]Klerkx and al. (2012).
[83]Mathè et al. (2016); FAO (2022); Kilelu et al. (2013).
[84]Toillier A. et al. (2018).
[85]Niche innovations are typically innovations or prototypes carried out and developed within small networks, or by one or few actors that do not yet have a well-formed market.
[86]OECD (2006), OECD (2008); TAP (2016).
[87]TAP (2016).

- Capacity to collaborate (e.g. enabling actors to understand each other's perspectives and managing conflicts, managing diversity in order to combine individual skills and knowledge, and creating an awareness of their complementarity);
- Capacity to reflect and learn, i.e. bringing AKIS actors together, designing and leading processes of critical reflection and following a learning process leading to action and change (called 'double loop learning' because of a double cycle of experiments, observations, reflection and new actions);
- Capacity to engage in strategic and political processes (i.e., capacity to understand and influence political and power relations between individuals, within organisations and in society) and;
- Capacity to adapt and respond in order to realise the innovation potential[88].

Figure 8. The four capacities to change



Source: Tropical Agricultural Platform, 2017; FAO, 2022

Relevance for evaluation: Assessing the contribution of CAP interventions to increase these capacities to innovate at individual, organisational and system levels.

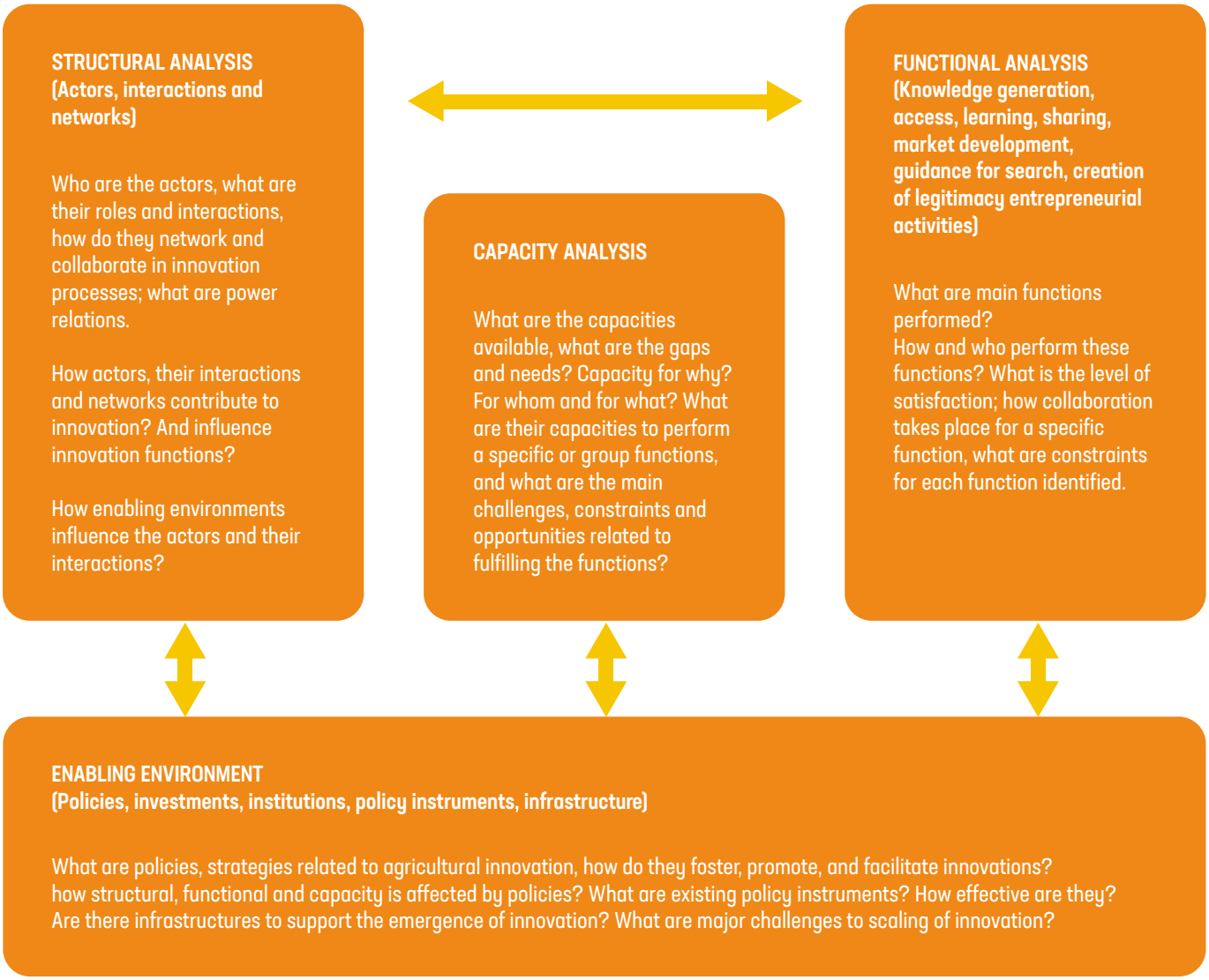
The enabling environment perspective

The introduction of the AKIS concept within the CAP is due to the need to promote a comprehensive strategic approach in order to create an enabling environment to bridge the gap between research and practice and thus allow innovations to flourish in Member States. In this view, research and innovation policy-makers and researchers have considerable influence in shaping an enabling environment for innovation through, for example, setting the research agenda and the mobilisation of resources, based on a strategic vision for innovation.[89] Therefore, an enabling environment perspective is very useful to focus on the analysis of AKIS strategic approaches, the system's governance, the infrastructures and the policy instruments that are applied within the CAP SPs and how all these affect, in turn, the AKIS[90].

Relevance for evaluation: Assessing the contribution of the CAP to create the enabling environment for innovation.

[88]TAP (2017); FAO (2022).
[89]SCAR AKIS, 2019.
[90]FAO, 2022.

Figure 9. Integrated analytical framework for a multi-perspective assessment of AIS



Source: FAO, 2022

Annex 3 – The european innovation partnership for agricultural productivity and sustainability (EIP)

The European Innovation Partnership for Agricultural Productivity and Sustainability (EIP) was launched by the European Commission in 2012 (COM 2012 of 29/02/2012) with the aim of fostering a competitive and sustainable agriculture and forestry sector that "achieves more from less"[91] by promoting better coordination between research and practice.

In general, the EIP aims to "streamline, optimise resources, avoid duplications, simplify, and better coordinate existing instruments and initiatives and complement them with new actions or a more coherent policy framework where necessary"[92]. In this regard, synergies between European Social Innovation Funds (the European Agricultural Fund for Rural Development, the European Agricultural Guarantee Fund, the European Social Fund and the European Regional Development Fund) and European research programmes (e.g. Horizon Europe) are strongly encouraged to maximise the quantity and quality of research and innovation investment and their impact[93].

It adopts the interactive innovation model aimed at fostering bottom-up approaches and collaboration between various actors to make best use of complementary types of knowledge (scientific, practical, organisational, etc.) in order to boost the co-creation and dissemination of solutions/opportunities that are ready to be implemented in practice[94].

The EIP is implemented by means of three building blocks: Operational Groups (OGs) and CAP Networks, to be established at the national and European level, both supported by the CAP in the 2023-2027 period and the thematic networks, supported by the European research programmes.

OGs[95] are multi-actor collaborations within interactive innovation projects, involving a wide variety of actors (namely, farmers, researchers, advisors, businesses, environmental groups, consumer interest groups or other NGOs), from different sectors and social backgrounds, motivated by the common goal of tackling a certain practical problem or opportunity that may lead to an innovative solution.

CAP Networks should develop a stronger 'innovation strand' to foster innovation and knowledge exchange and to facilitate the networking of EIP OGs.

Ultimately, **Horizon Europe multi-actor projects** (including thematic networks) aim to develop, synthetise and present best practices and research results with a focus on themes and issues that are close to being put into practice but not yet known by practitioners. This material should be easily understandable and available beyond the project period, shared through the EIP network. Thematic networks help to establish cross-border OGs, after working together on a common theme in such a Horizon Europe project.

[91] http://ec.europa.eu/eip/agriculture/en/content/eip-agri-part-eu%E2%80%99s-growth-strategy-decade

[92] Parliament, E. et al., 2017. 'Policy support for productivity vs. sustainability in EU agriculture: towards viable farming and green growth: research for AGRI Committee', Publications Office of the European Union. Retrieved from https://policycommons.net/artifacts/293087/policy-support-for-productivity-vs-sustainability-in-eu-agriculture/1176867/ on 03 May 2022. CID: 20.500.12592/1g4g9w.

[93] Annex 1 of the CPR Regulation (Regulation (EU) No 1303/2013 of 17 December (2013).

[94] EU SCAR, 2012.

[95] See section 4.1 of the rural development EIP guidelines http://ec.europa.eu/eip/agriculture/sites/agri-eip/files/pb_guidelines_eip_implementation_2014_en.pdf

Annex 4 – Recommended working steps of the evaluation phases

This annex provides an overview of recommended working steps for each of six evaluation phases that are applied when assessing the AKIS strategic approach. These steps are complemented by expected outputs and results for each evaluation phase.

Table 11. Planning phase

Recommended working steps for planning the evaluation
› Appoint the unit/staff responsible for the evaluation of the AKIS strategic approach and its preparation.
› Allocate financial resources for the evaluation.
› Define the AKIS actors to engage during the different evaluation phases.
› Establish a steering or advisory group for the evaluation.
› Define arrangements and tools to coordinate and steer the evaluation processes.
› Define quality standards and procedures.
› Define a communication and dissemination plan.
› Define a roadmap to follow up the evaluation's results.
Expected outputs
› Operational plan document for the evaluation of the AKIS strategic approach.
› Quality standards and control arrangements/tools in place.
› Steering or advisory group established.
› Communication and dissemination plan.
Expected results
› Evaluations planned in time and with good quality.
› AKIS actors are well-informed about the Evaluation Plan for the AKIS strategic approach.

Table 12. Preparing phase

Recommended working steps for preparing the evaluation
› Define the overall strategy for the engagement of the relevant stakeholders during the evaluation processes.
› Define a concept note on the evaluation of the AKIS strategic approach and discuss it with the relevant stakeholders.
› Review the intervention logic in order to define which elements to assess.
› Define the elements to assess.
› Define the evaluation questions.
› Define the Terms of Reference and select the evaluator.

Expected outputs
› Terms of Reference, including the evaluation elements/factors of success and questionnaire, timing of the evaluations, reporting and evaluator profile.
Expected results
› The evaluator is selected. › AKIS actors are engaged with the evaluation strategy.

Table 13. Structuring phase

Recommended working steps for structuring the evaluation
› Apply the theory of change to develop the expected pathway of change, based on the intervention logic of the AKIS strategic approach. › Select evaluation methods and their combinations. › Verify the applicability of a given evaluation method in the context of the pre-selected evaluation approach (i.e. theory of change). › Review the appropriateness of a method to meet basic evaluation standards. › Review data requirements for the chosen methods. › Propose adjustments of the monitoring system. › Set up arrangements for the timely provision of data to the evaluator.
Expected outputs
› Design of the evaluation that includes tasks, stakeholders to involve and timing according to clear approach, methods, tools, evaluation elements, questions, factors of success and indicators. › Procedures and arrangements for the provision of secondary data.
Expected results
› The evaluation design, including purposes, scope, objectives, methods, tools, conditionalities, timing and processes, is clearly defined and shared among the different stakeholders. › The stakeholders are well aware of the tasks to carry out during the evaluation processes.

Table 14. Observing phase

Recommended working steps for preparing the evaluation
› Create the tools needed for applying the envisaged observing methods. › Set up appropriate databases for information storage and further elaboration. › Apply the methods to collect data and qualitative information. › Assess knowledge gaps and provide solutions according to the state of play of the AKIS strategic approach.
Expected outputs
› Evaluation database and collection of quantitative and qualitative information needed.
Expected results
› Significant information and data provide evidence and robustness that fit the envisaged analytical methods and EQs well.

Table 15. Analysing phase

Recommended working steps for analysing data and information
› Display tools for data and information analysis. › Calculate common and specific indicators. › Conduct the analysis to determine initial findings. › Identify possible limitations of evaluation findings. › Share and discuss initial findings with relevant stakeholders to possibly obtain more information.
Expected outputs
› Evaluation findings and data elaboration (e.g. SNA visualisation; AKIS map).
Expected results
› Clear findings are determined and are likely to support the formulation of robust judgements and conclusions. › Relevant stakeholders' understanding of the findings and their role in the evaluation has been enhanced.

Table 16. Judging phase

Recommended working steps for judging and drawing conclusions and recommendations
› Answer all evaluation questions based on the evaluation findings and indicators. › Judge on the evaluation elements and the key factors of success. › Review the theory of change of the AKIS strategic approach. › Draft conclusions and recommendations for improving the AKIS strategic approach in the context of the CAP SP. › Deliver the evaluation results in the context of dissemination and communication activities. › Identify follow-up activities and responsibilities.
Expected outputs
› Evaluation judgements, conclusions and recommendations. › Communication and dissemination material. › Roadmap for follow-up of recommendations.
Expected results
› Evaluation elements and key factors of success are assessed and feed into the AKIS strategic approach implementation/design. › Conclusions are drawn and recommendations are drawn up and integrated into the meliorated AKIS strategic approach. › Awareness is raised about the contribution of the AKIS strategic approach to the CCO and to the other SOs of the CAP. › Follow-ups of evaluations have duly contributed to improve the AKIS strategic approach in the context of the CAP Strategic Plan.

Annex 5 - Methods for the evaluation of the AKIS strategic approach

The theory of change approach is proposed in these guidelines for the evaluation of the AKIS strategic approach. This can be applied through several methods proposed in Table 5 of the guidelines and described in more detail here, including references and examples for some of them on how they have been used in practice.

The methods supporting the theory of change approach in the evaluation of the AKIS strategic approach can be distinguished according to their use as:

- Methods to co-construct the theory of change;
- Methods based on the actor-network theory;
- System analysis methods;
- Transversal methods.

Methods to co-construct the theory of change of the AKIS strategic approach

Methods that help co-construct the theory of change of the AKIS strategic approach or of certain AKIS interventions and define the impact pathway according to the expectations and the views of the relevant AKIS actors:

- **Contribution analysis:** This is used for assessing causal questions and inferring causality in real-life programme evaluations. It offers a step-by-step approach that can help MAs arrive at conclusions about the contribution their AKIS-related interventions and their combination have made (or are currently making) for particular outcomes. The essential value of contribution analysis is that it is designed to reduce uncertainty about the intervention's contribution to the observed results through an increased understanding of why the observed results have occurred (or not) and the roles played by the intervention and other internal and external factors. Contribution analysis is particularly useful for providing evidence and a line of reasoning from which one can draw conclusions about the contribution of AKIS interventions to the expected results. (See some examples of application of the contribution analysis in practice.[96])
- **Outcome mapping:** This is an evaluation method that can support the theory of change approach, providing a framework to collect data on current, critical changes that lead to longer, more transformative change and allow for the plausible assessment of the intervention's contribution to results. For instance, it can be used to assess how a basic change such as an increased number of farmers participating in training programmes can lead to a more transformative change, such as changes in farming practices, after participating in training programmes (see element 3 in Table 2 and Table 4). Another example is to check whether the use of advice has increased (see the success factors of element 4 in Table 2 and Table 4). (See some examples of the application of the outcome mapping in practice.[97])
- **Most Significant Change (MSC):** MSC involves the collection of personal accounts of change (stories or outcomes) and determining which stories are the most significant through discussions with AKIS actors, i.e. by involving AKIS actors, indications about what is valued by actors also emerge. It is not a method that provides evidence about the usual experience, but reveals extremes and therefore has to be combined with other methods. In a normal distribution of outcomes, stories often come from the extremity. They can therefore help generate evidence from the extremity of little or negative change or of huge positive (more than expected) change. MSC is useful for explaining how change comes about (e.g. how farmers change their practices or how collaboration comes about) and when (e.g. after an AKIS intervention, as a result of it or as a result of a contextual change). (See some examples of application of the MSC in practice.[98,99])

These methods depict or disentangle multiple factors that have interacted to achieve results. They can be used simultaneously to construct different impact pathways. The wide application of these methods in a participatory way has demonstrated their usefulness in ensuring the significance and robustness of collected data, while also facilitating actors to think systematically on which outcomes have been achieved so far and by whom and to manage implications and adaptations in strategies to bring about desired outcomes.[100]

[96]Mayne, J. (2008). Contribution analysis: An approach to exploring cause and effect (ILAC Brief 16). Institutional Learning and Change (ILAC) Initiative.
[97]Doutwaite, B. and Paz-Ybarnegaray R.(IFSA) (2016): Outcome Evidencing: A Rapid and Complexity-Aware Evaluation Method, IFSA 2016 proceedings, WS 1.2 Monitoring and evaluation for learning and innovation http://ifsa.boku.ac.at/cms/fileadmin/IFSA2016/IFSA2016_WS12_Douthwaite.pdf
[98]Fink Shapiro, L., Hoey, L., & Colasanti, K. (2021). Stories as indicators: Lessons learned using the Most Significant Change Method to evaluate food systems work in Michigan. Journal of Agriculture, Food Systems, and Community Development, 10(2), 399–411. https://doi.org/10.5304/jafscd.2021.102.025
[99]Davies, R. and Dart, J. (2005) The 'Most Significant Change' Technique - A Guide to Its Use, Funded by CARE International, United Kingdom Oxfam Community Aid Abroad, Australia | Learning to Learn, Government of South Australia Oxfam New Zealand | Christian Aid, United Kingdom | Exchange, United Kingdom Ibis, Denmark | Mellemfolkeligt Samvirke (MS), Denmark Lutheran World Relief, United States of America. Retrieved from https://www.betterevaluation.org/tools-resources/most-significant-change-technique-guide-its-use
[100]Faure et. al., 2018; Cristiano and Proietti., 2019; FAO, 2018; Douthwaite & Paz-Ybarnegaray, 2016.

Box 3. Example: Outcome mapping to monitor and assess capacity development in AKIS

Outcome mapping was used by Capacity Development for Agricultural Innovation Systems Project (CDAIS), Agrinatura and FAO, in collaboration with national partners, in several capacity development for innovation interventions aimed at strengthening the functional capacities of actors to engage in innovation processes.

The method is helpful for monitoring the progress towards the achievement of the desired results concerning Capacity Development (CD) interventions based on the direct feedback of the participating stakeholders, recommending improvements and adjustments, and stimulating reflection and learning among them. Participants were asked to co-define the Outcome Challenge (OC (Priority Objective)), reflect on the major behavioural changes relating to the OC and formulate a number of observable intermediate Progress Markers (PM)/milestones. PMs were presented in the form of statements (subject + verb + object) describing how the actors had to move from where they were to the achievement of the OC (e.g. actors are aware of other organisations able to provide Innovation Support Services; actors link with policy-makers; advisory services are more tailored to farmers' needs). After this process, the facilitators brought all the PMs together and there was a process of discussion, deleting overlaps, combining similar ideas and prioritising the most relevant progress markers that have then been used to further monitor and assess the achieved CD.

For further information: Food and Agriculture Organization of the United Nations (FAO) 2018, Agrinatura, "Outcome mapping factsheet". https://tapipedia.org/sites/default/files/outcomemapping.pdf

Box 4. The Most Significant Change (MSC) to assess the effects of interactive innovations at farm level

The use of the Most Significant Change has been used in the case of cooperation of innovation projects funded by 2007-2013 RDPs in Italy to assess their effectiveness at farm level by re-constructing, together with the innovative farmers, the theory of change of the interventions applied.

MSC was specifically used to co-identify the most relevant Farm Accountancy Data Network (FADN) indicators that could reflect the desired change at farm level, for tracking and assessing performances of innovations by attributing these indicators to the effects of a specific innovation, among other investments. MSC helped grasp farmers' perspectives and define relevant metrics to capture real changes due to the take-up of innovations, by inducing reflection about intermediate achievements. Additionally, the method helped close the attribution gap based on tracking the performances of the investments along different stages of the innovation processes and depicting the interdependencies and possible side-effects that such cooperative processes entail.

For further information: Simona Cristiano & Patrizia Proietti (2019): Evaluating the effects of interactive innovations at farm level: the potential of FADN, The Journal of Agricultural Education and Extension. https://doi.org/10.1080/1389224X.2019.1583812

Methods based on the actor-networks theory

Methods based on the actors-network theory are very commonly and convincingly applied, also in a participatory way, to help actors identify, visualise, observe and assess the evolution of the positioning (in terms of centrality, number of ties, the strength of ties, proximity) of different types of AKIS actors and infrastructures, the types of linkages on which networks rely and the connections with the environment.[101] For example, among the latest applications, Social Network Analysis was applied to detect the roles of brokers in networks[102] and to investigate farmers' advice networks[103] within an AKIS:

- **Stakeholders mapping and analysis:** Stakeholder analysis can help identify relevant stakeholders through the issues that are of concern to them and their influential role in the AKIS and the implementation of the strategic approach within CAP SPs, for example, through collecting information on indicators where data is not collected through the monitoring database. It can be addressed to AKIS actors at different levels: the coordinators of OGs, the EIP Service Point, the National CAP Network, etc. (See some examples of the application of the stakeholder mapping and analysis in practice. [104,105])

- **Social Network Analysis (SNA):** SNA can be used to identify knowledge flows[106] and stakeholders as knowledge providers, creators, users, etc. It can be used to collect evidence with regard to indicators related to an intervention at two points in time, allowing for the calculation of changes in an average path length and numbers of different types of actors involved. Changes then need to be related back to the intervention under consideration through key informant interviews with knowledgeable but independent people (i.e. not involved in the intervention) who can verify or discount causal claims. Examples include:

  1. in order to assess the role of OGs in knowledge sharing (see element 3 in Table 2 and Table 4), SNA can look at OG plots (e.g. identifying key players in terms of knowledge sharing within the OG), assess the structural characteristics of OG stakeholders (e.g. centrality or peripherality of stakeholders, e.g. relevant to knowledge sharing within AKIS) and overlaps between them (e.g. identifying key connectors) and discuss the results of these analyses in a focus group;

  2. or assessing the National CAP Network activities in terms of knowledge sharing, SNA can measure the involvement of relevant stakeholders and assess the effectiveness of CAP Network activities that support knowledge flows and exchange.

  SNA can be applied in two different ways. Firstly, designing a questionnaire involving the application of SNA as a one-mode network and to ask what should be known before and what to measure. The second approach is the two-mode network, which can be applied from attribute data. In this case, a questionnaire is not needed. (See some examples of application of the SNA in practice.[107,108,109])

- **Knowledge mapping:** Knowledge maps are built on the concept of sociograms. It is a type of analysis focussed on the identification of the relationships established between members of a network as well as between networks. Knowledge maps make it possible to visualise the actors and social groups that are present in a specific territory, which is especially useful for locating those who act as a 'bridge', and who, therefore, are essential to interview. Furthermore, knowledge mapping can be used in the analysis of agricultural knowledge networks, as social ties play a critical role in sharing agricultural knowledge, leading to more efficient and sustainable practices.[110] Using knowledge mapping is essential to understand the flows of information, knowledge and innovation. They can be combined with SNA for a more in-depth assessment of knowledge flows. (See some examples of application of the knowledge maps in practice.[111,112,113])

- **Actor Network Analysis (ANA):** ANA asks questions about who is linked to whom, the content of the linkages, the pattern they

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[101]Schiffer, E., 2007; Klerkx et al., 2010; Hermans et al., 2013; Temel, 2004; Spielman et al., 2011.
[102]Becker & Bodin, 2022.
[103]Kabirigi et al., 2022.
[104]D. D'Agostino and M. Borg and S.H. Hallett and R.S. Sakrabani and A. Thompson and L. Papadimitriou and J.W. Knox}, (2020) Multi-stakeholder analysis to improve agricultural water management policy and practice in Malta. Agricultural Water Management, Volume 229, 28 February 2020, 105920. https://doi.org/10.1016/j.agwat.2019.105920
[105]Hermans F, Sartas M, van Schagen B, van Asten P, Schut M (2017). Social network analysis of multi-stakeholder platforms in agricultural research for development: Opportunities and constraints for innovation and scaling. PLOS ONE 12(2): e0169634. https://doi.org/10.1371/journal.pone.0169634
[106]It is important to bear in mind that knowledge flows appear in different ways or hierarchy levels. One can think of institutions as a knowledge provider (top-down approach), but SNA helps to understand the knowledge flows between farmers in a horizontal way.
[107]Oriana, V.-M.; Carmen, D.-P.-H.; Cecilio, B.; Jaime, R.; Antón, G. The Importance of Network Position in the Diffusion of Agricultural Innovations in Smallholders of Dual-Purpose Cattle in Mexico. Land 2021, 10, 401. https://www.mdpi.com/2073-445X/10/4/401
[108]Villarroel Molina, O.; De Pablos Heredero, C.; Rangel, J.; Vitale, M.P.; García, A. Usefulness of Network Analysis to Characterize Technology Leaders in Small Dual Purpose Cattle Farms in Mexico. Sustainability 2021, 13, 2291 https://www.mdpi.com/2071-1050/13/4/2291
[109]FAO (2018), Social network analysis for territorial assessment and mapping of Food Security and Nutrition Systems (FSNS). A methodological approach. https://www.fao.org/documents/card/en/c/I8751EN
[110]Cadger et al., 2016.
[111]Cruz, JL., and Barrutieta, A. (2022). Cambio climático e innovación en el cultivo de cereales: percepciones desde el sector. Series Estudios IMIDRA 6. Edit. IMIDRA. (p. 55) https://www.comunidad.madrid/sites/default/files/doc/medio-ambiente/cambio_climatico_e_innovacion_en_el_cultivo_de_cereales_-_percepciones_desde_el_sector_0.pdf
[112]Cruz, JL and Barrutieta, A. (2022). AKIS, cambio climático y gestión del suelo en la viticultura de la Comunidad de Madrid. Serie Estudios IMIDRA nº7. Edit. IMIDRA https://www.comunidad.madrid/sites/default/files/doc/medio-ambiente/cruz_et_al_2022_akis_cambio_climatico_y_suelo_en_la_viticultura_de_la_cm.pdf
[113]AgriHub and Finnish NRN SU (2022). Finnish AKIS network analysis. https://maaseutuverkosto.fi/uutiset/akis-verkostoanalyysi-paljasti-toimijakentan-laajuuden-ja-tiiviin-yhteistyoverkoston/

form, the relationship between the pattern and behaviour, and the relationship between the pattern and other societal factors[114]. It helps identify the actors involved and their possible roles as well as some of the opportunities and risks associated with involving these actors[115]. It may be used in the evaluation of the AKIS strategic approach in the CAP SP to answer questions related to knowledge flows (please see element 3 in Table 2 and Table 4) or to interactive innovation (e.g. analysing actors in OGs). (See some examples of application of the ANA in practice.[116,117])

- **Visualised AKIS mapping:** Visualisation-based AKIS mapping relies on the iterative elaboration of an AKIS diagram or graph that provides a static picture of actors and infrastructures of the system along with the strength (e.g. strong, weak) and the directionality (e.g. one or two ways) of their linkages in certain contexts (e.g. at national or regional governance level, for the entire sector or particular value chains)[118]. Such diagrams can be drafted based on a targeted desk study and then specified, cross-checked and refined in dialogue with the AKIS actors concerned. The dialogue process requires a transparent participatory methodology that needs to be predefined by making use of the various methods proposed in these guidelines. Visualisation-based AKIS mapping is a versatile applicable tool and ample experience with the design and the implementation exists in the i2connect[119] project.

Some examples of applying the above methods are provided in the boxes below.

Box 5. Example of stakeholder mapping and analysis in Hungary

Stakeholder analysis and mapping was used in Hungary in a study on the 'Situation assessment of the agri-innovation and digitalisation ecosystem'. This was part of the preparatory process for the establishment of the CAP Network Innovation and Digitalisation Support Unit (Support Unit).

The aim of the study was to identify the actors, institutions, networks and segments of the agricultural innovation and digitalisation ecosystem in Hungary, map formal and informal connections between actors and examine the impact of these connections on sectoral knowledge transfer and innovation processes.

The mapping of the agricultural innovation and digitalisation ecosystem relied on both primary and secondary data collection and analysis, obtained with quantitative and qualitative approaches. The research focussed on the actors and institutions, their role in the ecosystem and the presence of formal and informal relationships between them. The spatial characteristics of their relationships were also examined.

Secondary data was based on the pre-defined groups of ecosystem actors from public data sources, policy and legislative resources and online sources. Primary data was collected using questionnaire surveys and interviews. The surveys were carried out among farms included in the FADN and were used to find out the intensity, content and form of knowledge exchange and innovation cooperation between different groups of institutions (subsystems) of agricultural innovation and agricultural and food enterprises. The interviews (individual semi-structured) were used for actor groups (service providers, educational, research and consultancy organisations) to find out their innovation information, digitalisation, knowledge creation, and transfer, application activities and professional links, and achievements.

The study will present a comprehensive overview of the national stakeholders by AKIS groups and by AKIS subsystems (research, education, advisory, other). The stakeholder mapping will allow the Innovation and Digitalisation Support Unit to rely on the identified actors for different types of activities.

[114]Boissevain, 1979.
[115]Hekkert & Negro, 2009.
[116]Tesfaye, A., Hansen, J., Radeny, M., Belay, S., & Solomon, D. (2020). Actor roles and networks in agricultural climate services in Ethiopia: a social network analysis. Climate and Development, 12(8), 769–780. https://doi.org/10.1080/17565529.2019.1691485
[117]H. Farhangi, M.; Turvani, M.E.; van der Valk, A.; Carsjens, G.J. High-Tech Urban Agriculture in Amsterdam: An Actor Network Analysis. Sustainability 2020, 12, 3955. https://doi.org/10.3390/su12103955
[118]Further specifications of what is taken into consideration are of course possible, even recommended.
[119]https://i2connect-h2020.eu/resources/akis-country-reports/

Box 6. Example of the use of SNA (Social Network Analysis): Understanding the microAKIS of innovative farmers in Greece

SNA was used in Greece to reconstruct and understand the knowledge sources that they personally assemble at various stages of their decision-making process during innovation processes (awareness, assessment and implementation).

The cases explored regard three types of innovations applied by farmers in rural areas characterised by different advisory landscapes in terms of presence/absence and plurality of service providers (independent advisors, farmers' social circles, producer cooperatives, research institutes and universities) and of advisory methods applied to support innovation processes (peer-to-peer exchanges, joint events by producer cooperatives and advisors; dissemination of research findings by diverse actors, awareness-raising activities).

The cases regard the following innovations: (1) the implementation of an innovative Integrated Pest Management practice, regarding the mating disruption (MD, also known as 'sexual confusion') of insects by installing a network of micro sprayers across peach cultivations (Imathia-Northern Greece); (2) the widespread cultivation of avocado (Chania-Crete); (3) the introduction of stevia as alternative cultivation aiming at replacing high input and water consuming traditional crops, such as tobacco and cotton, with more profitable and environmental-friendly ones (Karditsa-CentralGreece).

The use of SNA was integrated by the concepts of social capital, 'microAKIS' (the knowledge sources which farmers seek while innovating) and the Triggering Change Model (TCM) that explains the decisions of farmers about innovations as major changes in their farming trajectory occur in response to trigger event(s).

The collection of data was based on a mix of methods that included farmers' surveys and in-depth interviews that engaged a total number of 122 farmers. Farmers were asked to identify influential actors (as suppliers of information, knowledge and skills) and the nature ('how' the interaction is done and farmers' activities to assemble knowledge and skills), frequency and direction of the interaction.

The use of the SNA helped understanding: the diversity of actors from whom farmers seek advice during the different innovation stages (e.g. farmer-based organisations, independent consultants, input companies, clients, traders, business partners, researchers, neighbours, family and friends) and the effectiveness of certain advisory methods in each specific case (e.g. training and discussion groups that provided farmers with know-how and evidence of MD's effectiveness); the existence of actors championing the innovation and/or playing the role of network manager (e.g. farmers building up farmers' cooperatives); the influence and the frequency of the different sources of advice on farmers' decision-making (e.g. farmers relying only on private actors other than their main cooperatives; effect of differentiated dissemination activities with regard to adopters vs. non-adopters or drop-outs); the influential role of the specific advisory layout on farmers' construction of their microAKIS (e.g. lack of input providers delaying the adoption of the specific innovation); the triggering events that prevented the farmers from adopting or not or even dropping the innovations (e.g. timing of the provision of financial incentives, contact with input providers) and factors that influenced the assessment about adopting/non-adopting/dropping the innovation (e.g. lack of trust concerning the intention of neighbouring farmers to adopt in the MD case; and the ability of the payment organisations to reimburse the relevant costs in time).

For further information: Alex Koutsouris, Eleni Zarokosta. Farmers' networks and the quest for reliable advice: innovating in Greece. Journal of Agricultural Education and Extension, Taylor & Francis (Routledge), 2021, pp.1 - 27. 10.1080/1389224x.2021.2012215. hal-03553384.

Box 7. Example: Visualised AKIS mapping

This method was applied during the PRO AKIS[120] (2012) and i2connect[121] (2019) European research projects to analyse AKIS in countries across the EU by gathering relevant data and information on both the contextual situation (policy strategies, instruments and bodies, R&I infrastructures, advisory services, etc), particularly advisory services and their interplay.

It is based on innovation system approaches and, by adopting the infrastructural perspective on AKIS, it helped in providing a comprehensive AKIS inventory, which reflects the institutional environment for interactive innovation in agriculture.

The method can be applied at different AKIS levels and subsystems of AKIS and it may support MAs, evaluators and other experts. It engages a mix of qualitative and quantitative methods and, since such analyses are largely based on stakeholders and key-informants' perceptions, this allows triangulation and validation of different types of information. The mix of methods which can be used includes: a questionnaire to guide focus groups and/or semi-structured interviews with key informants and/or the wider range of AKIS actors, aiming at investigating aspects that allow the characterisation of a specific AKIS; advisory services' survey; an actors' diagram, which helps visualise the main AKIS actors and respective types of interactions as identified by interviewees; secondary data and information from relevant documentation, etc.

The actors' diagram in particular provides an impressive visualisation of the overview of the organisations and institutions comprising the AKIS under consideration. Once drafted, the diagram should be considered as preliminary and should be used as a basis for the discussions taking place during the expert interviews and the survey on advisors for further elaboration. The definition of the AKIS diagram includes the following steps: Prepare a list of possible organisations which comprises AKIS, taking into consideration typologies of actors; sketch out a diagram that shows the different actors and respective linkages (e.g. bold lines for strong linkages/broken lines for weak linkages; unidirectional/bidirectional arrows).

The information provided in the diagram is complemented with the report on the state of play of AKIS. That includes: (1) Main structural characteristics of the agricultural sector, highlighting the most important structural characteristics of the agricultural sector of the respective country; (2) Characteristics of AKIS, providing a description of the main AKIS actors, policy frameworks, AKIS governance and coordination structures, as well as national or sectoral arrangements about knowledge exchange and coordination; (3) The history of the advisory system in the agricultural sector, providing a review of the history of advisory services in the respective country, specifically taking into account significant developments and changes in the advisory system in the last decade; (4) The agricultural advisory service(s), providing an overview of all advisory service suppliers and highlighting some key characteristics such as public policy and the provision and funding schemes, human resources and advisory methods, clients and topics, linkages with other AKIS actors.

This schematic indication of necessary information allows the systematic and comparative analysis information of AKISs across the EU and over time. This exercise demonstrated its usefulness in grounding some AKIS strategic approaches within the CAP SP 2023-2027 (e.g. Germany; Spain) as it provided information about the actual state, including the strengths, weaknesses, opportunities and threats, of the current AKIS. This, in turn, facilitated the design of the overall strategy for strengthening the AKIS, including actions to improve knowledge flows, particularly between farmers, advisors, researchers and CAP Networks, and the description of the organisation of all farm advisors and of the Innovation Support Services.

For further information: Knierim et al. (2020). Deliverable 1.1 Innovation advisors for interactive innovation process: Conceptual grounds and common understandings

[120]FP7 project PRO AKIS - Prospects for Farmers' Support: Advisory Services in European AKIS Coordinator: ZALF, Germany (2013-2014).
[121]https://i2connect-h2020.eu/resources/akis-country-reports/

System analysis methods

System analysis methods have been widely applied for the diagnosis of knowledge and innovation systems:

- **Innovation system analysis:** This can be used to map the knowledge and innovation system, i.e. map its structural components (e.g. actors, networks, institutions) and assess its functionality (i.e. the activities and dynamics of the innovation system). It can be applied at national or regional level or at sectoral level (e.g. farm advisory systems). Mapping the innovation system can be pertinent, for instance, to identify the AKIS detailed interventions (or sub-interventions) that are in place to contribute to innovation and to assess how their set-up and institutional support promote or inhibit innovation. (See some examples of application of the innovation system analysis in practice.[122])

- **Rapid Appraisal of Agricultural Innovation Systems (RAAIS):** RAAIS focuses on the integrated analysis of different dimensions of problems (e.g. biophysical, technological, socio-cultural, economic, institutional and political), interactions across different levels (e.g. national, regional, local), and the constraints and interests of different stakeholder groups (e.g. farmers, government, researchers). RAAIS is based on (a) the identification of stakeholder groups and of the diversity within the groups; (b) the identification of the structural conditions that enable or constrain innovation in AIS; (c) an analysis of the interactions within the system based on interviews and focus groups. (See some examples of application of the RAAIS in practice.[123,124])

- **Institutional mapping and analysis:** This provides a conceptual map for understanding how institutions, which include public policies, are designed and how people interact in creating and implementing policies. It can be used to assess the quality and efficiency of governance. It can therefore be useful in assessing the implementation arrangements of AKIS-related interventions (see element 2 in Table 2 and Table 4). If we apply SNA into the analysis, we can also introduce institutions as actors, or belonging to an institution as a farmer attribute. Therefore, at the end, we will have a network where we can see how farmers are grouped or distributed in the network, and how this attribute can affect their level of innovation. For example, when institutions apply agricultural extension programs, it may promote the adoption of a certain technology. So, we will see that farmers in the network who have been part of that extension program tend to adopt the same technologies or may have similar levels of innovations. (See some examples of application of the institutional analysis in practice.)

- **Force Field Analysis:** This method has its origins in psychology and is based on the premise that situations are maintained by the equilibrium between forces that drive and forces that resist change. For change to happen, the driving forces must be strengthened or the resisting forces weakened. It can be useful to assess 'forces for change', e.g. peer-to-peer learning, increased use of knowledge exchange platforms (see element 3 in Table 2 and Table 4), frequent training for advisors (see element 4 in Table 2 and Table 4) or increased dissemination activities (see element 5 in Table 2 and Table 4). On the other hand, 'forces against change' (e.g. limited propensity to innovate, lack of sufficient funding or lack of institutional support) must be weakened. Comparing the two (forces for and against change) can help identify which AKIS-related interventions are more effective or how to focus the support on certain interventions that are more likely to force change.

- **Reflexive Monitoring in Action (RMA):** RMA is an integrated methodology to foster learning within multi-actor groups or networks and institutional change to deal with complex problems. RMA is addressed to innovation managers or innovation brokers and is relevant for monitoring innovation projects. It can be used in combination with system and actor analyses. One of the useful aspects of RMA is that it looks at four key aspects and the connections between them: (a) what the interventions are doing; (b) what has already been achieved (results); (c) what the barriers and opportunities in the current system are; and (d) to what extent the interventions and results are contributing to change in the system. This act of reflection makes it possible to adjust the activities, if necessary, and increases the participants' motivation. In addition, it may help people to understand what institutional bottlenecks are creating friction and how to get things moving again. More concretely, in the case of AKIS in CAP SPs, it may provide MAs with information on how to make AKIS interventions contribute to the CCO by reducing institutional bottlenecks and/or re-directing or focussing the interventions. (See some examples of application of the RMA in practice[125].)

These methods take advantage of participation or consultation of AKIS actors to support theory of change co-construction towards action for change. In particular, they can be applied to help profiling the current situation of systems in terms of infrastructures and of their relations[126], to detect and address concrete problems (e.g. different categories of system failures by typologies of actors) and barriers as well as the identification of opportunities and entry points towards specific change together with AKIS actors[127]. For example, some institutional analysis could be adapted to the case of AKIS governance bodies and arrangements of the CAP SPs (e.g. coordination bodies; AKIS strategic approaches) to assess the influence of institutional enablers or constraints in relation, for instance, to their effectiveness in terms of contributing to CAP objectives and/or to the reinforcement of the innovation systems in Member States.[128]

[122]Schut, Marc et al. "Systems Approaches to Innovation in Crop Protection. A Systematic Literature Review." Crop Protection 56 (2014): 98–108. Web.
[123]Schut, Marc et al. "Participatory Appraisal of Institutional and Political Constraints and Opportunities for Innovation to Address Parasitic Weeds in Rice." Crop Protection 74 (2015): 158–170. Web.
[124]Barrett, T., Feola, G., Krylova, V. and Khusnitdinova, M. (2017) The application of Rapid Appraisal of Agricultural Innovation Systems (RAAIS) to agricultural adaptation to climate change in Kazakhstan: a critical evaluation. Agricultural Systems, 151. pp. 106-113. ISSN 0308-521X doi: https://doi.org/10.1016/j.agsy.2016.11.014 Available at https://centaur.reading.ac.uk/68364/
[125]See RMA Guide of the Wageningen University: https://edepot.wur.nl/149471
[126]Toillier et al., 2018.
[127]Barrett et al., 2017; Schut et al., 2015a; Schut, et al., 2015b; FAO, 2021; Klein Woolthuis et al. 2005; van Mierlo et al. 2010; Gildemacher et al. 2009.
[128]Hall et al. 2001; Clark et al. 2003; Klerkx and Leeuwis 2008; Spielman et al. 2008.

Box 8. Example: The use of RAAIS (Rapid Appraisal of Agricultural Innovation Systems) to analyse the state of AKIS and provide entry points for development strategies

The Rapid Appraisal of Agricultural Innovation Systems (RAAIS) was applied as a diagnostic tool to analyse parasitic weed problems in the rice sector and to identify specific and generic entry points for innovations to address the problem in rain-fed rice production in Tanzania and Benin. Parasitic weed was gaining relevance due to the expansion of rice production areas across these countries and was at the time causing significant yield reductions to farmers.

RAAIS is a diagnostic tool that integrates innovation system concepts (e.g. multi-stakeholder and multi-level dynamics and interactions; system capacity, etc.) and aims to provide a coherent set of: (1) analyses of innovation capacity and support in the agricultural system, by including its structural conditions (e.g. actors, interactions, infrastructures); (2) specific entry points for innovation to address complex agricultural problems, and (3) generic entry points to decide about policy arrangements for enhancing innovation capacity and support for the agricultural system.

RAAIS combines multiple qualitative and quantitative methods of data collection, participatory (insider/stakeholder-led) and more traditional (outsider/researcher-led) analyses, that are able to provide a static as well as a dynamic view on the specific AKIS by triangulating and validating the data and information collected (e.g. how the extension system as described through interviews with policy-makers, function in reality according to the farmers surveyed). This method targets different stakeholder groups that are relevant for the specific AKIS and creates the awareness that is needed when exploring and designing solutions to address specific problems in AKIS.

In the specific case referred to here, the RAAIS was realised through three research lines: (1) One-day-long multi-stakeholder workshops where participants represented relevant typologies of local stakeholders. These workshops allowed for the collection of structural information on innovation capacity and support within the specific agricultural systems by focussing on identifying and categorising constraints along with exploring specific and generic entry points for innovation; (2) Surveys to broadly study specific groups of stakeholders and to go more deeply into some of the constraints that emerged during the workshops. For example, a socio-economic farmer survey was held to study the impact of parasitic weeds on rain-fed rice farming. In Tanzania, a farmer-extensionist survey was held to explore the effectiveness of the national agricultural extension policy; (3) Semi-structured one-hour-long interviews with national and local representatives of farmer cooperatives and associations, NGOs/ civil society, the private sector, government and research and training institutes. Interviews helped deepen some aspects that had previously emerged, identifying interesting storylines related to the problem under review (e.g. lack of agro-input infrastructures, which was limiting the use of fertilisers) and validating the information collected. Secondary data collection was conducted through the review of relevant documentation (e.g. policy documents, laws or legal procedures).

RAAIS provided insights into the current state of the agricultural system and specific and generic entry points for developing and implementing coherent policies to address structural constraints of the local AKIS in order to guide a transition towards the desirable state in which the parasitic weed problem would have been addressed and the overall innovation capacity increased (specific theory of change for the case). Importantly, this method contributed to revealing the interconnections between different problem dimensions, multi-level interactions and multi-stakeholder dynamics related to parasitic weed problems. The specific entry points for innovation, for example, identified included the potential relationship between the preference for growing local, aromatic rice varieties (social-cultural dimension), the low capacity of farmers to purchase certified seeds (economic dimension), the spread of parasitic weed seeds through the local rice seed system (technological dimension), along with the untimely and insufficient availability of agricultural inputs provided by the government (institutional dimension) and limited interaction and collaboration among networks of key stakeholders (political dimensions) that form additional bottlenecks for addressing such problems.

As for the provision of generic entry points for innovation, RAAIS showed that the absence or poor performance of fertiliser distribution infrastructure, limited farmer-extensionist interaction and lack of functional institutions for quality control were constraining the innovation capacity to fertilising strategies that could have helped mitigate the parasitic weed problem.

For further information: Marc Schut, Laurens Klerkx, Jonne Rodenburg, Juma Kayeke, Léonard C. Hinnou, Cara M. Raboanarielina, Patrice Y. Adegbola, Aad van Ast, Lammert Bastiaans, RAAIS: Rapid Appraisal of Agricultural Innovation Systems (Part I). A diagnostic tool for integrated analysis of complex problems and innovation capacity, Agricultural Systems, Volume 132, 2015, Pages 1-11, ISSN 0308-521X, https://doi.org/10.1016/j.agsy.2014.08.009.

Transversal methods

These are methods that can be adapted to any evaluation and used to support information collection for some of the abovementioned methods. They include:

- **Case studies:** These offer the possibility to mix various other methods and are very flexible in their design. They are commonly used in knowledge and innovation system analyses, being usually associated with more focussed tools (e.g. SNA, institutional analysis, innovation histories), particularly to analyse the state of structures (e.g. actors, interactions, infrastructures and networks).

> Case studies can be planned ahead to illustrate the theory of change which has been constructed

Case studies particularly allow for deeper investigations through quantitative, descriptive and qualitative information to feed comprehensive assessment at system and sub-system levels (e.g. advisory services; specific farming systems like agroecology). For example, for the purposes of the PRO AKIS and i2connect EU projects, a relevant number of case studies were conducted for assessing AKISs across the EU.[129] See also some other examples of the use of case studies in practice.[130]

- **Innovation histories:** These can be an element of case studies as they are a tool for recording and reflecting on an innovation process. People who have been involved in the innovation jointly construct a detailed written account (sometimes referred to as a 'learning history') based on their recollections and on available documentation. The process of preparing this history stimulates discussion, reflection and learning among stakeholders.
- **Focus groups and interviews:** These are dialogue-based methods that can be arranged per typology of actor (e.g. advisors that receive training, members of OGs, farmers that use advice) or per type of intervention (e.g. training, advisory services, EIP OGs).
- **Surveys:** These can be used to collect data and information on innovation that is not in the monitoring databases, particularly in relation to the specific indicators proposed here. Surveys can be addressed to the advisors, farmers, researchers, CAP Networks, EIP OGs and other AKIS actors.
- **MAPP (counterfactual method):** These methods enable the identification of the net effects of interventions. They are based on the creation of 'control groups', which are compared to a similar group of beneficiaries (in terms of certain farmers' and/or farms' characteristics). The two groups are compared in order to observe changes and assess if, other things being equal, the situation of beneficiaries has improved as a result of the interventions. These are usually quantitative methods, widely used in the impact evaluations of the CAP, provided that there is sufficient data available[131]. In the context of AKIS, it is proposed to use a qualitative method for assessing net impacts, the MAPP (Method for the Assessment of Programmes and Projects), which is a focus group method for the assessment of impacts. It includes a set of tools that can help evaluate the influence of AKIS-related interventions on each indicator and summarise the scale of impact on each indicator for different interventions, while also explaining the main influences.

Box 9. Example: Evaluating innovation through a participatory approach and the use of case studies

Evaluating innovation through a participatory approach and the use of case studies: The experience of assessing Strategic Plans of Operational Groups (OGs) of the Tuscany RDP 2014-2022.

The participatory method, adopted by the evaluator, Lattanzio KIBS SpA, distinguished itself for its ability to involve a wide and diversified audience of subjects. This, together with the use of case studies, expressed its full potential for evaluating the effectiveness of Strategic Plans of OGs. The process consisted in the construction of a shared path between the evaluator and the administration. Together they came up with evaluation hypotheses, ad hoc survey tools and evaluation objectives and results.

In practice, the method used envisaged the implementation of four distinct phases – with varying arrangements – that involved the evaluator, stakeholders, Steering Group and the Tuscany regional authority:

1. The first phase consisted of the identification of evaluation needs, reconstruction of the logical framework, the definition of the evaluation questions and the relative judgement criteria and indicators (evaluator and Tuscany region);
2. The second phase was meant to define useful primary and secondary data and identify the survey tools (evaluator, Tuscany region and Steering Group);

[129] Knierim et al, 2015.
[130] Alex Koutsouris & Eleni Zarokosta (2021): Farmers' networks and the quest for reliable advice: innovating in Greece, The Journal of Agricultural Education and Extension, DOI: https://www.tandfonline.com/doi/full/10.1080/1389224X.2021.2012215
[131] There are a lot of practical experiences and literature to help evaluators in using counterfactual methods. see Guidelines 'Assessing RDP achievements and impacts in 2019'. https://enrd.ec.europa.eu/evaluation/thematic-working-groups/thematic-working-group-5-assessing-rdp-achievements-and-impacts_en

3. In the third phase, the evaluator focussed on data collection:
   - in-depth interviews with OG leaders and privileged witnesses, for the realisation of case studies on 16 Strategic Plans of OGs;
   - two focus groups: (1) addressed to stakeholders, in particular to agricultural associations, in order to gather further elements on the effectiveness of the tool, (2) addressed to Tuscany region officials to share the main results and provide useful insights;
4. The fourth phase saw the formulation of the main conclusions and recommendations (evaluator and Tuscany region).

The assessment of the effectiveness of the Strategic Plans of OGs tool covered the concrete implementation mechanisms, the reconstruction of the role of the main actors involved (universities, farms, consultants and technicians, etc.) and aimed at detecting the initial economic, social and relational impact as perceived by the various participants.

The formulation of conclusions and recommendations was thus enriched with different points of view thanks to a dynamic evaluation process in all its phases that allowed an integrated and holistic reading of the regional context. Thanks to this method, it was also possible to formulate more operational and useful indications both to understand "what worked and what did not work" in the current programming period and to provide useful elements to further strengthen the Strategic Plan OG tool in the next programming cycle.

For further information: Third Thematic Evaluation Report "Innovation in Agriculture - The Strategic Plans of the Operational Groups", Lattanzio KIBS SpA (Virgilio Buscemi, Paola Paris, Silvia De Matthaeis and others), 2022, https://www.regione.toscana.it/psr-2014-2020/gestione-e-sorveglianza/monitoraggio-e-valutazione1

Innovation capacity scoring tool

A specific innovation capacity scoring tool based on Capacity Development - Agricultural Innovation System (CD-AIS) approach has been developed by the FAO to systematically assess capacity development needs and progress made over time and due to collaborative innovation processes. This tool could be adapted to EU evaluations and implies a set of meaningful indicators related to different domains of individual capacities (to navigate complexity, to collaborate, reflect and learn, to engage in strategic and political processes) along with technical skills and enabling environments[132].

Box 10. Use of the FAO scoring tool to assess needs capacity development for agricultural innovation systems

The scoring tool was applied in eight pilot countries under the EU-funded CDAIS project, jointly implemented by national partners, FAO and AGRINATURA.

The scoring tool evaluates capacities on the basis of 24 indicators and identifies which functional capacities (e.g. Capacity to collaborate; Effectiveness of communication channels; Cooperation among actors in the group) will be needed to promote, lead or successfully participate in innovation processes. The tool can be adequately applied at the project/partnership level, for example cooperation projects for innovation, and at organisation level (e.g. research centre). The scoring tool is based on a questionnaire that divides capacities into six headings pertaining to soft skills (Capacity to navigate complexities (9 indicators); Capacity to collaborate (3 indicators); Capacity to learn and reflect (4 indicators); Capacity to engage in strategic and political processes (5 indicators) and, transversal, Technical skills (1 indicator) and Enabling environment (2 indicators)).

A step-by-step guide on how to collect meaningful data for the scoring tool and implement it is provided by the FAO and includes: (1) Preparation to get to know the case and contextualise the scoring tool; (2) Primer, a participatory simulation game/role play, which enables stakeholders to develop a common understanding of the challenges and the capacities needed to address the challenges; (3) Data Collection, based on the submission of the questionnaire by stakeholders organised in small groups with the support of trained facilitators; (4) Data entry, which includes the recording and visualisation of data (i.e. the data collected in the previous step are entered in a pre-configured spreadsheet); (5) Data Analysis, which leads to profiling the capacities by headings; (5) Feedback and definition of the roadmap for commonly agreed steps and actions.

[132] Grovermann et al., 2017.

For example, the scoring tool and the simulation game/role play were introduced in Laos during a capacity needs assessment workshop for a pig raising innovation involving a multi-actor partnership that included researchers, extension agents, traders as well as pig producers. A team of trained national facilitators facilitated the role play and the self-assessment using the scoring tool. The results of the scoring tool were used to produce capacity profile graphs in order to visualise the capacity level of the innovation partnership for each indicator, as perceived by the participants.

For further information:

- *Assessment of innovation capacities - A scoring tool (FAO, 2017): www.fao.org/3/a-i7014e.pdf*
- *FAO Practical tool: Monitoring capacity development*

Overview of methods and tools

The following table provides an overview of all the methods described in the annex as well as relevant suggested tools, distinguishing between those that can be used in the 'Observing' phase of the evaluation and those that can be used in the 'Analysing' phase.

Table 17. Overview of methods and tools (per key element) to assess

	(1) Design elements of the AKIS strategic approach	(2) Implementation arrangements	(3) Knowledge flows and strengthening links between research and practice	(4) Strengthening farm advice and fostering all advisors' interconnection within AKIS	(5) Interactive innovation projects and innovation support services	(6) Digitalisation (effective use of ICT to improve KF)	(7) Complementarities
Methods for observation							
Focus groups	X	X	X	X	X	X	X
Semi-structured interviews	X	X	X	X	X	X	X
Brainstorming	X	X	X	X			
Political mapping	X	X	X	X			
Most Significant Change (MSC)	X						
Rapid Appraisal of the AKIS (RAAS)	X						
Visualised AKIS mapping	X	X	X	X	X		
Knowledge mapping	X	X	X	X	X	X	
Surveys		X		X	X	X	X
Innovation histories					X		
Case studies					X		
Methods for analysing							
Stakeholder mapping and analysis	X						
Actor Network Analysis (ANA)	X	X	X	X	X		
Social Network Analysis (SNA)	X	X	X	X	X		

	(1) Design elements of the AKIS strategic approach	(2) Implementation arrangements	(3) Knowledge flows and strengthening links between research and practice	(4) Strengthening farm advice and fostering all advisors' interconnection within AKIS	(5) Interactive innovation projects and innovation support services	(6) Digitalisation (effective use of ICT to improve KF)	(7) Complementarities
SWOT analysis	X	X	X	X	X	X	X
Rapid Appraisal of the AKIS (RAAS)	X						
Force Field Analysis	X	X	X	X	X		
Reflexive Monitoring in Action (RMA)	X	X	X	X	X	X	
Visualised AKIS mapping	X	X	X	X	X		
Institutional mapping and analysis		X	X	X			X
Expenditure analysis		X	X	X			
Contribution analysis		X	X	X		X	
Outcome mapping		X	X	X			
Innovation system analysis		X	X	X	X		
Cluster analysis			X	X	X		
Case studies			X		X		
MAPP			X	X	X		
Tools							
Problem tree analysis	X		X				
Fish bone diagram	X						
Relational diagrams/Matrices	X	X	X	X	X		
Net-map	X	X	X	X	X	X	
Monitoring databases		X	X	X	X	X	X
Input/output matrix		X	X	X	X		
Spiral of innovation				X	X		
Coherence matrix							X

Annex 6 - Further reading

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Annex 7 - Glossary of key terms

Term	Acronym	Definition
Advisor	N/A	Agent who assists clients in decision-making, for example by linking clients to relevant knowledge and actors, and facilitating the decision-making process. *I2Connect glossary: https://i2connect-h2020.eu/glossary/*
Agricultural Knowledge and Innovation System	AKIS	AKIS is the combined organisation of knowledge flows between individuals, organisations and institutions who use and produce knowledge for agriculture and interrelated fields. *Article 3(9) of the Regulation (EU) No 2021/2115; https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R2115&from=EN*
AKIS strategic approach	N/A	A combination of AKIS-related interventions that stem from the SWOT analysis and are planned in the CAP Strategic Plans to contribute to the achievement of the CCO and nine SOs of the CAP Strategic Plan. In order to strengthen its AKIS and in line with its AKIS strategic approach, each Member State or region, as appropriate, should be able to fund a number of actions aimed at knowledge exchange and innovation, as well as facilitate the development by farmers of farm-level strategies to increase the resilience of their holdings, using the types of intervention developed in Regulation (EU) No. 2021/2115. *Regulation (EU) No 2021/2115; https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R2115&from=EN* *EC Tool 8.1 Tool for the CAP Cross-Cutting Objective: https://ec.europa.eu/eip/agriculture/sites/default/files/8.1_tool_for_modernisation_-_akis_and_digital_technologies_-_on_circabc_7_oct_2021.pdf*
Coherence	N/A	The evaluation of coherence involves looking at how well (or not) different interventions, EU/international policies or national/regional/local policy elements work together. Checking 'internal' coherence means looking at how the various components of the same EU intervention operate together to achieve its objectives. Checking 'external' coherence means that similar checks can be conducted in relation to other ('external') interventions, at different levels. Where relevant, analysis of coherence may involve checking whether interventions are in line with the objectives of the European Green Deal or whether the intervention is consistent with the overarching environmental goals (such as the Climate Law) or other policies targeting the environment. *The EU Better Regulation Toolbox 2021, Tool #47, p. 408. https://commission.europa.eu/system/files/2022-06/br_toolbox_-_nov_2021_-_chapter_6.pdf*
CAP Strategic Plan	CAP SP	The post 2022 CAP follows a performance- and results-based approach built around ten objectives, which frame the EU countries' CAP Strategic Plans. These combine targeted interventions addressing specific needs and delivering on EU-level objectives. Each Strategic Plan combines a wide range of targeted interventions addressing the specific needs of that EU country and delivers tangible results in relation to EU-level objectives, while contributing to the ambitions of the European Green Deal. *CAP Strategic Plans, https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans_en.*
Cross-Cutting Objective	CCO	One of the ten objectives of the CAP, the CCO objective of the CAP, focussed on the "modernisation of agriculture and rural areas by fostering and sharing of knowledge, innovation, and digitalisation and by encouraging their uptake by farmers, through improved access to research, innovation, knowledge exchange, and training". *Key policy objectives of the new CAP; https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/new-cap-2023-27/key-policy-objectives-new-cap_en*

Term	Acronym	Definition
Efficiency	N/A	Efficiency considers the resources used by an intervention for the given changes generated by the intervention. Efficiency analysis should look closely at the costs of the EU intervention as they accrue to different stakeholders. The efficiency analysis should also compare the identified costs with the benefits that were identified under the effectiveness criterion as well as explore the potential for simplification and burden reduction. *The EU Better Regulation Toolbox 2021, Tool #47, p. 404 - 405. https://commission.europa.eu/system/files/2022-06/br_toolbox_-_nov_2021_-_chapter_6.pdf*
Effectiveness	N/A	Effectiveness analysis considers how successful EU action has been in achieving or progressing towards its objectives. The evaluation should form (a) an opinion on the progress made to date and (b) the role of the EU action in delivering the observed changes. The effectiveness analysis should also look closely at the benefits of the EU intervention as they accrue to different stakeholders. *The EU Better Regulation Toolbox 2021, Tool #47, p. 403. https://commission.europa.eu/system/files/2022-06/br_toolbox_-_nov_2021_-_chapter_6.pdf*
EIP Operational Groups	EIP OG	Groups of people (such as farmers, researchers, advisers, etc.) who work together on a practical innovation project with concrete objectives. Operational Groups are financed by the European Agricultural Fund for Rural Development. *(EH Glossary; EIP - AGRI brochure on Operational Groups).*
Hard to reach farmers	N/A	Those farmers who either do not use the public or private advisory services or use a minimum level of the services accessible to them. *Acknowledging Hard to reach farmers: cases from Ireland. Kinsella, J. (2018). https://esciencepress.net/journals/index.php/IJAE/article/download/2400/1183*
Impact	N/A	In an impact assessment process, the term impact describes all the changes which are expected to happen due to the implementation and application of a given policy option/ intervention. Such impacts may occur over different timescales, affect different actors and be relevant at different scales (local, regional, national and EU). In an evaluation context, impact refers to the changes associated with a particular intervention which occur over the longer term. *(EH Glossary; DG AGRI (2017) Technical Handbook for the CMEF 2014-2020).*
Infrastructures (knowledge and innovation)	N/A	Knowledge and innovation infrastructures can be broadly referred to as the conglomerate of people, institutions, tools, facilities, which are engaged in the generation, capturing, preservation (organisation, storage, retrieval) and dissemination of different resources with the purpose of empowering and extending innovation in EU agriculture. In an AKIS perspective, infrastructures refer to assets of a given AKIS and shape the interactions between the actors and institutions. *Cristiano S., Proietti P., Augustyn A., Geerling-Eiff F. (2019): Lessons learned on research and innovation for AKIS, in SCAR AKIS (2019) Preparing for Future AKIS in Europe, European Commission, Brussels. (211-247). https://scar-europe.org/images/AKIS/Documents/report-preparing-for-future-akis-in-europe_en.pdf*
Intervention	N/A	Intervention is used as an umbrella term to describe a wide range of EU activities including: expenditure and non-expenditure measures, legislation, action plans, networks. *EH Glossary; DG AGRI (2017) Technical Handbook for the CMEF 2014-2020.*
Intervention logic	N/A	The intervention logic is the logical link between the problem that needs to be tackled (or the objective that needs to be pursued), the underlying drivers of the problem and the available policy options (or the EU actions actually taken) to address the problem or achieve the objective. This intervention logic is used in both prospective Impact Assessments and retrospective evaluations. *EH Glossary; DG AGRI (2017) Technical Handbook for the CMEF 2014-2020.*

Term	Acronym	Definition
Institutions	N/A	Institutions are all forms of organisation, agreements, contracts, explicit / implicit rules and common habits, but also language and culture that regulate the interactions among actors. *Edwards, Tim. 2000. "Innovation and Organisational Change: Developments Towards an Interactive Process Perspective." Analysis https://doi.org/10.1080/713698496.* *Knierim, A., Boenning, K., Caggiano, M., Cristóvão, A., Dirimanova, V., Koehnen, T., Labarthe, P., & Prager, K. (2015). The AKIS concept and its relevance in selected EU member states. Outlook on Agriculture, 44(1), 29-36. https://doi.org/10.5367/oa.2015.0194*
Knowledge flows	N/A	Within AKIS, knowledge flows are the social process that takes place within cognitive contexts (e.g. paradigms, cognitive rules and regimes) in response to problems, opportunities and challenges. They reflect how dynamic an AKIS is and encompass the generation, sharing and use of different types of knowledge and their (re)combination, possibly, leading to innovation. *Agricultural knowledge and innovation systems in transition – a reflection paper (SCAR AKIS, 2012) https://scar-europe.org/images/AKIS/Documents/AKIS_reflection_paper.pdf* *AKIS – Boosting innovation and knowledge flows across Europe (EIP AGRI, 2021) https://ec.europa.eu/eip/agriculture/sites/default/files/eip-agri_agricultural_knowledge_and_innovation_systems_akis_2021_en_web.pdf*
Relevance	N/A	The extent to which an intervention's objectives are pertinent to needs, problems and issues. Questions of relevance are particularly important in ex ante evaluation because the focus is on the strategy chosen or its justification. *EH Glossary; DG AGRI (2017) Technical Handbook for the CMEF 2014-2020.*
Specific Objectives	SO	Nine of the ten objectives of the CAP are Specific Objectives, each focussed on a specific goal. The nine Specific Objectives are: ensuring viable farm income; increasing competitiveness; farmer position in value chains; agriculture and climate mitigation; efficient soil management; biodiversity and farmed landscapes; structural change and generational renewal; jobs and growth in rural areas; and health, food and antimicrobial resistance. *Key policy objectives of the new CAP; https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/new-cap-2023-27/key-policy-objectives-new-cap_en*
European Union added value	N/A	EU added value looks for changes that are due to the EU intervention, over and above what could reasonably have been expected from national actions by the Member States. Under the principle of subsidiarity (Article 5 Treaty on European Union), and in areas of nonexclusive competence, the EU should only act when the objectives can be better achieved by EU action rather than action by the Member States. *The EU Better Regulation Toolbox 2021, Tool #47, p. 409. https://commission.europa.eu/system/files/2022-06/br_toolbox_-_nov_2021_-_chapter_6.pdf*

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