

BUILDING STRONGER AGRICULTURAL KNOWLEDGE AND INNOVATION SYSTEMS (AKIS) to foster advice, knowledge and innovation in agriculture and rural areas



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KEY MESSAGES

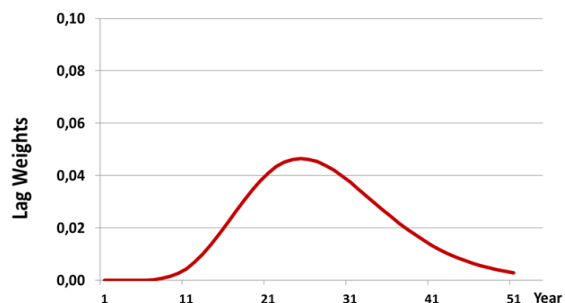
- ✓ **Knowledge and innovation** have a key role to play in helping the farmers and rural communities **meet challenges** of today and tomorrow.
- ✓ **Policy makers, farmers, researchers, advisors, associations and media** need to **step up their efforts to develop new knowledge and innovative solutions**. Moreover, **a conducive environment** across the EU for quicker innovation and better valorisation of existing knowledge to achieve the CAP objectives and deliver on international commitments needs to be set up.
- ✓ The **European Innovation Partnership for agricultural productivity and sustainability (EIP-AGRI)** is a unique policy framework to support interactive innovation projects at local and transnational level.
- ✓ Therefore, it is essential to build stronger **Agricultural Knowledge and Innovation Systems (AKIS)** to boost initiation and development of innovation projects, to disseminate their results and to use them as widely as possible.
- ✓ Successful **AKIS strategies** include four main groups of actions:
 - (1) Enhancing knowledge flows and **strengthening links between research and practice**;
 - (2) Strengthening **all farm advisory services and fostering their interconnection within the AKIS**;
 - (3) Enhancing cross-thematic and cross-border **interactive innovation**;
 - (4) Supporting the **digital transition** in agriculture.

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1. Stepping-up efforts to promote innovation and better valorise existing agricultural knowledge

Knowledge and innovation have a key role to play in helping farmers and rural communities meet substantial challenges. These include ensuring long-term food and nutrition security, bolstering environmental care and climate action and strengthening the socio-economic fabric of rural areas. Although agricultural research delivers new knowledge and there is already a substantial amount of knowledge available to answer these challenges, it tends to stay fragmented and insufficiently applied in practice. Moreover, the agricultural sector itself has considerable and under-used innovation capacity. On average, twenty years separate the start of research from the mainstream application of its outcomes in agriculture. The insufficient or too slow uptake of new knowledge and innovative solutions in farming, in particular by **small and medium-sized farms**, hampers a smooth transition towards a more sustainable agriculture as well as the farm sector's competitiveness and sustainable development. The 2030 Agenda for Sustainable Development leaves just ten more years to provide effective solutions. Therefore, all actors involved must simultaneously step up their efforts to develop new knowledge and innovative solutions. **A conducive environment for quicker innovation and better valorisation of existing knowledge** to achieve the CAP objectives and deliver on international commitments has to be set up across the EU, in an inclusive way.

Time lag between research and impact on farm productivity growth



Source: Alston, Anderson, James and Pardey (2010, 2011)

2. Co-creating knowledge and innovation through EIP-AGRI interactive innovation projects

In the 2014-2020 period, the European Commission has implemented new tools to stimulate innovation and development of knowledge that is useful for practice. The **European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI)** is a major policy and networking initiative designed to speed up innovation on the ground through the **interactive innovation model**. This model is based on collaboration between various actors (e.g. farmers, foresters, advisors, entrepreneurs,

consumers, researchers, etc.) and the identification of end-users' needs. It makes the best use of complementary types of knowledge in view of co-creation and dissemination of solutions ready to implement in practice.

The EIP-AGRI benefits from a unique set of instruments funded under two European policies working in close synergy: **Horizon 2020** and the **rural development pillar of the CAP. Operational Groups** (local interactive innovation projects) are the cornerstone of the EIP-AGRI under the CAP. They develop innovations by groups of relevant actors in a bottom-up manner. These groups hold great potential for creating the innovative solutions that will make farming smarter, more efficient and more sustainable. Today, around 1000 Operational Groups have started under the rural development programmes. We expect more than 3 000 such Operational Groups by the end of 2020. While Operational Groups are working at regional and national level, around 180 **European and international "multi-actor" research and innovation projects** funded under Horizon 2020 are dealing with similar issues related to agriculture and rural areas. The cornerstone of both types of projects is the interactive innovation approach in which actors with complementary knowledge work together from the project conception to implementation and dissemination of results. Building blocks for innovation are expected to come from science as well as from practice and intermediaries. End-users and practitioners are to be involved, not as a "study-object", but in view of using their entrepreneurial skills for developing solutions and creating "co-ownership" of results. This speeds up the acceptance and dissemination of new approaches.

3. Structuring knowledge exchange and fostering innovation processes in each Member State through their AKIS

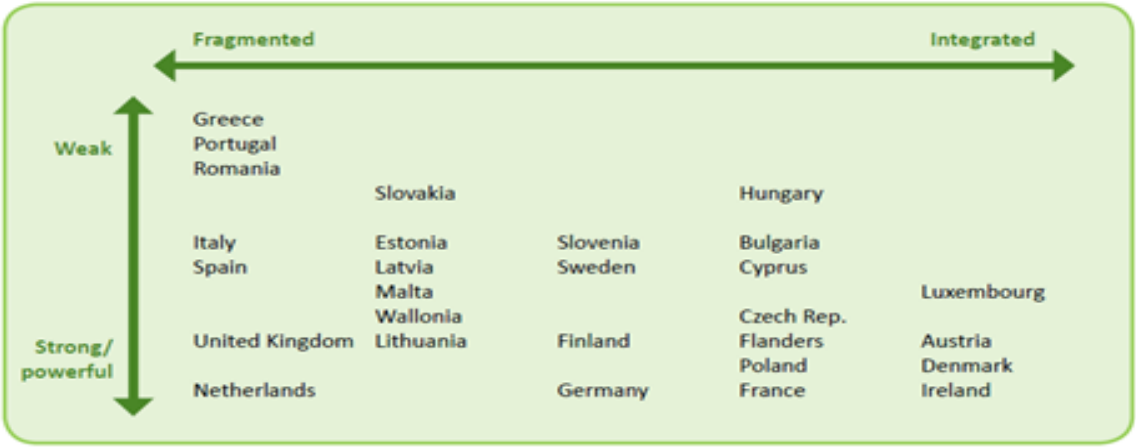
Beyond funding of interactive innovation projects, there is a need for structuring knowledge exchange and fostering innovation processes in each Member State. New combinations of knowledge, actors, technology and related investments drive innovation. **If actors have to meet and exchange ideas or problems to create common solutions, there is also a need to incentivise the creation of flexible innovation ecosystems** in each Member State. Therefore, it is essential to build better **Agricultural Knowledge and Innovation Systems (AKIS 2.0)**, inclusively covering all people and organisations that generate, share, and use knowledge and innovation for agriculture and interrelated fields (value chains, environment, society, consumers, etc.) in the various regions and Member States. The AKISs currently in place are not sufficiently up to the challenges of today and tomorrow. Their performance varies greatly from one Member State to another

(see figure¹ below), and often from one region to another within the same Member State. All Member States can improve some aspects of their current AKISs learning from one another. The EU has an interest in **ensuring that well-functioning AKISs exist throughout its territory, to avoid duplication of efforts, save costs, increase the impact of EU and national/regional funding and speed up innovation.**

PROAKIS study: Characterising MS' AKIS



An overview (as of 2014)

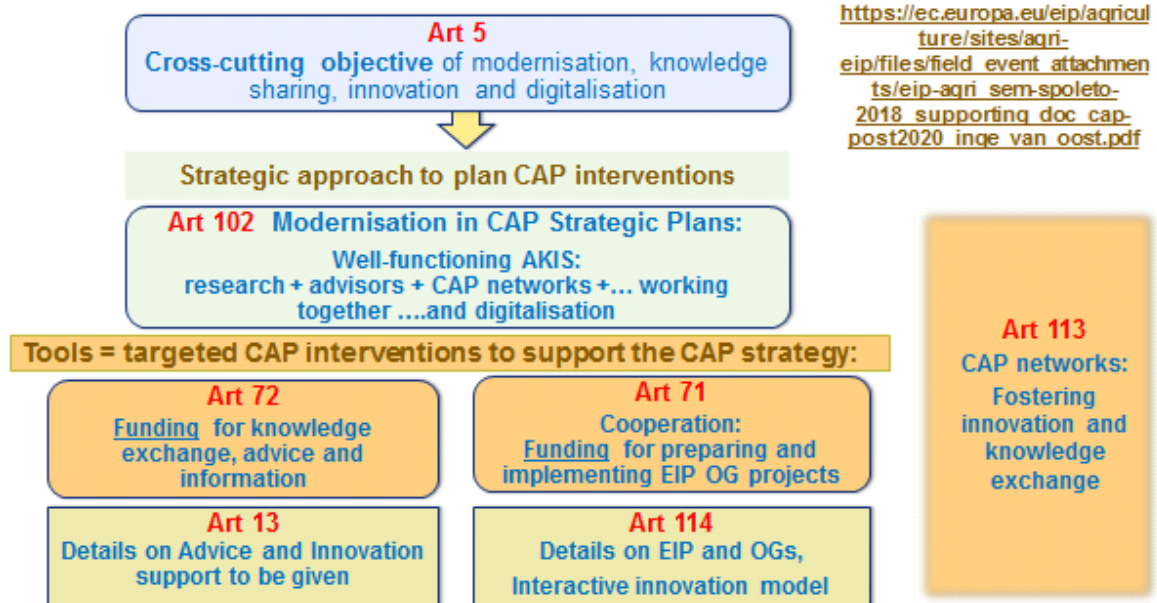


4. AKIS 2.0 - Member States' Strategic Plans for knowledge-based and innovative agriculture and rural areas of the future

Boosting the development of innovation projects and making these projects' results known and implemented is the key objective of an effective AKIS 2.0, following the **cross-cutting CAP objective** on 'modernisation of the sector by fostering knowledge, innovation and digitalisation of agriculture and rural areas' (Art. 5 of the CAP Strategic Plan regulation). Under the future CAP, the farm advisory services (article 13), the CAP Networks (art. 113) and the EIP-AGRI (art.114) can jointly contribute to this objective, notably through the support provided under the intervention types on knowledge exchange and information (art. 72) and cooperation (art. 71). **Including national AKIS strategies in CAP Strategic Plans will incentivise the structuring and organisation of the national innovation ecosystem (Article 102).**

¹ https://cordis.europa.eu/project/rcn/105025_en.html

**Integrated approach for modernisation, innovation and knowledge flows:
Overview of relevant AKIS provisions** (see detailed doc in EIP Seminar 17 Oct 2018)



More specifically, **successful AKIS 2.0 strategies include four main groups of actions:**

a. Enhancing knowledge flows and strengthening links between research and practice

The Foresight Study conducted by the Strategic Working Group on AKIS of the Standing Committee for Agricultural Research (SCAR) issued a warning regarding the **increasing privatization of knowledge** and the ever stronger dependency of farmers on commercial solutions. Sharing and building knowledge in an open way that creates space for actors to meet and develop ideas, is essential to generate innovation accessible to all. The EIP-AGRI experience has shown that success depends on the combined performance of advisors, agricultural training and education systems, researchers and farmer organisations (the AKIS). A range of interventions from the CAP regulation can support these incentives.

There are various ways to **strengthen links between research and practice**, such as:

- Incentivise and reward researchers for their impact on agricultural practice, to be promoted as an additional asset for their careers;
- request researchers to produce specific outputs that are easy understandable for practitioners (farmers, foresters, businesses etc.);
- help them to get inspired through supporting them to join regular meetings with practitioners, e.g. various agricultural (thematic) events

- make use of on-farm demonstrations where researchers could present their results and exchange informally to learn about farmers' needs;
- organise specific training sessions for researchers on the interactive innovation approach.

Furthermore, providing **sufficient CAP networking capacity for innovation** in the Member States will be key to support the AKIS related activities. This includes also to assist researchers, advisors and CAP networks to work closer together in an efficient and effective way. While the amount of useful practical knowledge generated under the EIP-AGRI is growing in the EU, the **CAP networks will play a role in translating and filtering what is most useful for their Member State or region.**

b. Strengthening farm advisory services within the AKIS

The role of farm advisors within the AKIS is particularly important, since they represent one of the **main information sources for farmers' decision-making**. The efficiency and effectiveness of advisory services can best be upgraded by **improving their connections within the AKIS and by sharing knowledge and innovative applications more widely**².

Advisors need to access the newest knowledge. They regularly need to upgrade their technological, farm management, interactive and digital skills. Therefore, **close involvement in innovative developments is essential**, as well as **training and thematic or cross-sector events to update advisors' knowledge**. **Exchange visits to learn peer-to-peer from other advisors** abroad are also very effective. Funding advisors' time spent with researchers is a useful means to enable closer interactions with research. A system of sharing knowledge and tools and training for advisers across the EU is needed. The first two EU farm advisors' networks doing so will start their activities in 2019 and 2020 under Horizon 2020 funding.

Furthermore, advisors play a key **role to collect farmers' needs and opportunities**, thanks to their one-to-one interactions with farmers while giving advice. They should feed these needs and opportunities into the AKIS for further development – **possibly as an "innovation support service"** -, helping knowledge systems to improve their impact. Farm advisors within the AKIS should also be trained to act as **innovation brokers/facilitators**, helping to prepare, participating in and sharing knowledge from EIP-AGRI OG and H2020 multi-actor projects. They also have an important role: **spreading the resulting knowledge and project results to their clients and beyond.**

² See SWG SCAR-AKIS Policy Brief on the Future of Advisory services on advisor's future interactive competences, interconnections and roles: https://ec.europa.eu/eip/agriculture/sites/agri-eip/files/policy_brief_on_the_future_of_advisory_services_scar_akis_06102017.pdf

c. Enhancing interactive innovation

To enhance interactive innovation projects it is **key to help connecting actors**, to facilitate cross-border and transnational EIP Operational Group calls and knowledge exchange. Furthermore, it will be essential to establish **innovation support services (ISS), one-stop shops to capture farmers'/foresters' needs and innovative ideas**. Supported by these ISS, EIP OGs or Horizon multi-actor project ideas can develop more easily, and projects are more likely to bring together actors with complementary knowledge who can help solve the challenges.

EIP **Operational Groups may engage in a very broad scope of activities, related to all nine CAP specific objectives**, e.g. develop new products or practices, engage in pilot projects, novel supply chain cooperation, joint environmental projects or climate change actions, collaborate in biomass provision or renewable energy, work together on forest management, develop rural issues, intergenerational renewal and farm diversification, and **test future CAP interventions**³. OGs benefit from the higher funding for the EIP scheme and from the innovation networking, as well as from the link with European Horizon projects. Under the future CAP, they may also form **cross-border OGs** exchanging on similar topics or cooperate among each other stimulated by the CAP networks.

d. Supporting digital transition in agriculture

Agriculture and rural areas are and will be changing significantly with the availability and multiplication of modern technologies, accompanied by smart devices, their increased "intelligence", autonomous behaviour and connectivity. **Also in the AKIS, ICT plays a role**. On the one hand, farmers need to be accompanied along the digital transformation process. Many farmers may be unable to keep up with new technologies. Therefore, having **impartial advisory services in place with sufficient digital knowledge and access to the data** is very important to help **minimise a digital divide** and make better use of the digital novelties. The future role of farm advisory services should include facilitating innovation projects on digital technologies as well as supporting farmers to orient themselves in the digital landscape. On the other hand, the AKIS itself will become more and more "digitised". New decision support tools become available every day and open knowledge reservoirs will be built.

To maximise the positive contributions digitisation can bring for agriculture and rural areas in the EU AKISs, a comprehensive approach is needed, combining **investments in knowledge and in the enabling environment**. Support for digitisation at farm level and for the establishment of high-speed internet

³ E.g. project preparing an agri-environmental intervention: <http://www.henharrierproject.ie/resources.html>

connectivity across Europe is essential. **Good ideas for digital innovations need attention and funding.** This can be done via Operational Groups on digital tools and agricultural Digital Innovation Hubs.

The current CAP legislative proposal requires from Member States a strategic and comprehensive approach, reinforcing the links between the broader AKIS, digitisation and existing advisory services. With these and other measures, the EU aims for a **fast deployment of digital solutions for a sustainable agriculture, fair and accessible for all.**

5. Conclusions

The approach implemented with the various EIP-AGRI instruments involving both Horizon 2020 (at transnational level) and the CAP (at national and regional levels) is gradually building a comprehensive knowledge base capable to deliver on the practical challenges faced by the agriculture and food/non-food sectors⁴. Therefore, **the focus is now on improving information flows within the AKIS.** It is essential for generating innovation to build and to share knowledge in an open way and to **create space for actors to meet and develop ideas. Innovation depends on this combined performance of AKIS actors.** There are many players – in particular at national/regional level - that have to be structurally involved in the creation and sharing of knowledge in order to create a **genuine innovation ecosystem.**

The **CAP modernisation will provide this enabling framework** for the transition pathways towards resilient, sustainable and climate friendly farming systems and value chains. It will help to secure the long-term supply of nutritious food and biomass, and the achievement of the 2030 Sustainable Development Goals. With well-functioning AKISs in Member States, knowledge and innovation will play a central role in this evolution. This includes also tackling the digital divide in agriculture and related sectors. **AKIS 2.0 is key to make farming more profitable and sustainable.**

Context and further info:

Impact assessment on Modernisation made in preparation of the CAP Commission Proposal:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2018%3A301%3AFIN>
Document 3 = Annex 6 of the CAP Impact Assessment – Promoting Modernisation

Overview of legal texts: COM(2018) 392 final

https://ec.europa.eu/eip/agriculture/sites/agri-eip/files/field_event_attachments/eip-agri_sem-spoletto-2018_supporting_doc_cap-post2020_inge_van_oost.pdf

⁴ EIP Seminar on AKIS: <https://ec.europa.eu/eip/agriculture/event/eip-agri-seminar-promoting-creativity-and-learning>
EIP AKIS Brochure: <https://ec.europa.eu/eip/agriculture/en/publications/eip-agri-brochure-agricultural-knowledge-and>