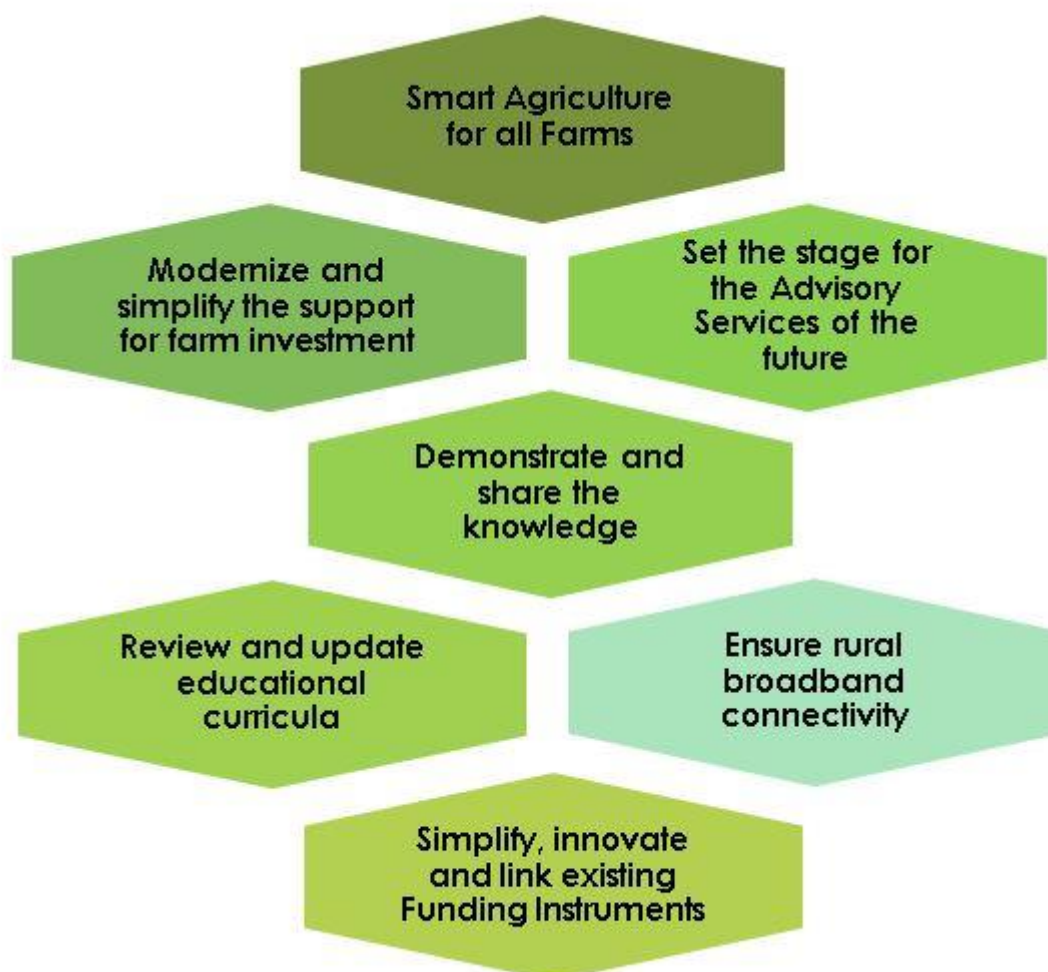


# Smart-AKIS

## Policy Briefs for mainstreaming Smart Farming in the new CAP



## Smart-AKIS Policy Briefs

### Who?

**Smart-AKIS** is the Thematic Network focusing on Smart Farming running from 2016 to 2018. During this time, Smart-AKIS has researched farmers' interests and needs *vis-à-vis* Smart Farming, disseminated Smart Farming technologies (SFTs) through an online platform, and involved more than 900 stakeholders in 7 EU countries. You can read about the Network's activity in [www.smart-akis.com](http://www.smart-akis.com).

This has allowed us to pool together a wealth of information and insights, leading to a number of recommendations for increasing the adoption of Smart Farming in Europe.

### What?

Smart-AKIS has conducted a thorough review of current EU policies impacting on Smart Farming adoption, including the current and future Common Agricultural policy (CAP). This **Policy Review**, together with the outcomes of the regional innovation workshops of Smart-AKIS, has been used to identify several **Policy Gaps** which should be addressed by the future Common Agricultural Policy, such as:

- Cutting red tape;
- Stimulating innovation;
- Meeting the sustainability goals (emission limits);
- Sustainable production (producing more and better with less);
- Improving social health and vitality in rural areas;
- Adapting smart farming schemes to the farm scale.

Smart-AKIS also proposes a number of **Policy Solutions** to overcome these gaps by providing examples of good practices already available at European level. They are extracted from **Policy Cases** assessed by Smart-AKIS. The Policy solutions include the following:

- Supporting farmers investment in SFTs through the CAP Second Pillar;
- Within SFTs, support Precision Agriculture tailored to farm size;
- Improve farmer's digital capabilities through lifelong learning, education and training together with demonstrations;
- Research and innovation as support strategies for boosting agricultural innovation, emphasizing the importance of advisers.

The **Smart-AKIS vision** for the new CAP after 2020 should be to turn the policy (EAFRD - European Agricultural Fund for Rural Development and EAGF - European Agricultural Guarantee Fund) into an opportunity to make EU agriculture smarter and greener, thereby contributing to a more sustainable and competitive EU agriculture. In this sense, EU policy makers are called to promote and realize a holistic approach aiming at:

- Promoting solutions that are farmers-centred and that reward farmers;
- Rewarding farmers also means rewarding their environmental performance and supporting demand-side policies with stricter environmental and food safety regulations;
- Simplifying and improving the aid programmes management.

The Policy Review, Policy Gaps, Policy Solutions and Policy Cases are described in a publication available at the Smart-AKIS website. With 7 **Policy Briefs**, this documents sums up the main challenges and recommendations.

## PB1. Smart Agriculture for all Farms

### What is the challenge?

The **Common Agricultural Policy (CAP)** should devote a specific percentage of the available budget to projects aimed at enhancing farm holdings' productivity.

### Policy Recommendations

As a key concept, a **Total Productivity Factor** could be used for allocating CAP funding in order to enhance the sustainable productivity of farm holdings.

The offered solutions should be **farmers-centered**. They should aim to **reward farmers**, e.g. through a **Sustainable Productivity Bonus**, and be adapted to the farm size:

- **Farms <50ha** – dedicated subsidy to invest in basic SFTs, voucher for using contractual services, special voucher for buying small-scale communication technologies with agricultural applications e.g. smart phones, tablets or computers;
- **Farms 50-100ha** – possibility to decide if farmers want to go for the Sustainable Productivity Bonus or apply for a dedicated Smart Technologies subsidy or voucher (for investment or renting of services);
- **Farms >100ha** – use the Sustainable Productivity Bonus, thus rewarding those farmers who are able to increase their productivity while strictly following the cross-compliance requirements.

Furthermore, according to the Smart-AKIS findings from Deliverable 2.2: "Report on farmers' needs, innovative ideas and interests", beside farm size and due to the specific conditions and compatibility and costs of the SFTs, **the dominant cropping system** should be also taken into account while recommending targeted support within the CAP.

### Expected impact

- The CAP after 2020 **improves access to Smart & Precision Agriculture Technologies** through e.g. a Sustainable Productivity Bonus which is adapted to the farm size and potentially to the dominant cropping system.
- **Different SFTs are eligible for the Sustainable Productivity Bonus**, such as: tools to analyze Big Data; smart devices that generate useful data, facilitate data sharing; connecting devices/tools; integration of smart-phones, tablets, embedded computers with dedicated software and applications; unmanned systems like drones, robots, and highly automated machinery.

## PB2. Modernize and simplify the support for farm investment

### What is the challenge?

Since the reform of the Common Agricultural Policy (CAP), **Rural Development** is playing an increasing role in helping rural areas to meet the economic, social and environmental challenges of the 21st century. The CAP consists of two pillars. The “first pillar” includes direct payments whereas the “second pillar” concerns rural development policy.

The new legal framework points more clearly in which direction to boost growth, create jobs for rural areas in alignment with the Lisbon Strategy, and improve sustainability in line with the Göteborg sustainability goals.

### Policy Recommendations

- The CAP “second pillar” is crucial for **promoting** balanced territorial development of rural economies and sustaining a farming sector that is environmentally sound, as well as competitive and innovative;
- The CAP “second” pillar should **support** farmers’ sustainable investments through schemes which can help them invest in new equipment and technologies, particularly when they are assessed to have a positive environmental impact;
- **The CAP after 2020 strategy** should turn the policy (EAFRD and EAGF) into an opportunity making EU Agriculture smarter and greener, thus **contributing to a more sustainable and competitive EU agriculture**.

### Expected impact

- The CAP “second pillar” **supports farmers’ sustainable investments** through funding schemes that help them invest in new equipment and technologies;
- Various funding mechanisms and bodies working at different levels (European, National and Regional) **join forces to work together** in order to achieve common objectives for the benefit of EU agriculture;
- **Farmers’ have a positive experience** with the implementation of EU support measures and successful collaborative schemes between the public and the private sector;
- **Investments** are stimulated in environmentally-friendly equipment and machinery aiming at attaining **competitiveness** and **sustainability goals**.

## PB3. Set the stage for the Advisory Services of the future

### What is the challenge?

The rapid pace of innovation often prevents advisors to be adequately updated on the latest or more appropriate technologies available on the market. The new role of **Advisory Services** in the digital age was well recognized during the different Smart-AKIS workshops. The testimonials of advisers that participated and that are confronted daily with challenges related to the uptake of Smart Farming Technologies (SFTs), revealed the gap between the need for change and farmers' willingness to change, and the insufficient capacities of innovation agencies and advisory services to effectively support these changes.

### Policy Recommendations

- **The training of advisers:** promoting activities which are focused on the training of trainers, including vocational training, skills acquisition actions, demonstration activities and information actions;
- **The methodology and tools for such training:** supporting all training and educational efforts with the latest digital and social media capabilities (videos, podcasts, Augmented Reality, Facebook, Twitter, serious games, etc.);
- **The “Agronomy First principle” approach**, when integrating smart farming technologies into training and information.

### Expected impact

- Overcoming currently existing bottlenecks in the different national and regional **Agriculture Knowledge and Innovation Systems (AKIS)** in Europe;
- Improving the training of advisors, but also the **availability of updated tools and methodologies for supporting the technology transfer**;
- **One-fix-for-all solutions** should be avoided and **tailored solutions** should be developed and applied to cope with differences between farms, countries and specialisation levels;
- the **promotion of outdoors fairs and field demonstrations by advisors** of Smart Farming Technologies through Field Days and Demonstration Farms, jointly with industry and for the benefit of advisors and farmers.

## PB4. Demonstrate and share the knowledge

### What is the challenge?

On farms, **data is collected, processed and analyzed** to take decisions related to cultures, nutrients, cycles or other strategic aspects of the agricultural practice. Farmers and/or farming managers unable to manage the data coming from Smart farming technologies (SFTs) will likely take less favorable decisions leading to a loss in efficiency and ultimately a decrease in the overall competitiveness of their business, while having made large investments.

But besides the not optimal use of SFTs, a main **barrier identified for SFTs adoption** by farmers is the lack of information on the real-life profitability and/or sustainability of smart farming technologies. More in particular, they are interested in increased yield performance and the reduced use of inputs.

### Policy Recommendations

- **Promote demonstration activities** at the farm level aimed at showing the farmers in their own region/country how new smart technology or machinery perform;
- Develop **harmonised methodologies** that provide representative findings on the performance of SFTs, thus helping farmers to take their decision on using SFTs, particularly concerning yield performance and the use of inputs;
- Promote tools that allow farmer **experiences** to be shared.

### Expected impact

- **Demonstration activities at farm level** are a crucial part of the agricultural knowledge exchange for innovation, with the benefit of having the possibility of testing the SFT directly on the field; **Demonstration farms** are key examples of support strategies facilitating the adoption and uptake of SFTs;
- More empirical based evidence about the economic benefits and environmental impacts of using SFTs will encourage farmers to **invest in SFTs**;
- **Farmer-to-farmer** learning is a crucial example of **knowledge exchange** in agriculture that can help in the uptake of new farming technologies or practices.

## PB5. Review and update educational curricula

### What is the challenge?

At the **higher education level**, the curricula offered from academia is often addressing farming from the “botanic” or biological side only, leaving other equally important themes poorly addressed, if not substantially ignored. Although the University curricula evolved over the last decade, there is still room for further improvement, especially in the area of precision farming. In reality, farms increasingly became places where data needs to be collected, processed and analyzed in order to take decisions about cultures, nutrients, cycles or other more strategic aspects of the agricultural practice.

### Policy Recommendations

Keep agricultural studies curricula in University and Schools updated, mainstreaming well-established and upcoming smart farming technologies:

- **University programmes** need to reflect the changes required by the 21st century's food security and productivity challenges, particularly in the field of precision farming;
- **University curricula** evolved slowly in the last decade incorporating aspects such as value and supply chains, or general notions on the bio-economy. However, the “agricultural” curricula remain largely incomplete and would need to be re-designed;
- **Educational programmes** need to be tailored to address the broadening range of educational needs since computer technologies in agriculture continue to deliver innovation in farming practice.

### Expected impact

- **Closing the research and practice gap in agricultural data management** is crucial and should be considered in the planning of higher education didactical offer;
- **Enhancing the farmers' technical skills and competences**, since several studies indicated that farmers who do not adopt SFTs usually have insufficient skills and competences;
- **Education** of the new generation of farmers for the challenges of the 21<sup>st</sup> century: given the new and severe challenges faced by the agricultural sector in the current globalised food markets, **managing data in agriculture** is becoming as important as agronomic knowledge and experience.

## PB6. Ensure rural broadband connectivity

### What is the challenge?

Considering the number of communication nodes and big data streams being from device to farm, device to cloud, cloud to cloud, Smart Farming Technologies depend on an **access to broadband** and **steady, high-quality internet connection**. Especially in rural areas, this access is lacking and if existing is not state of the art.

### Policy Recommendations

- Actual **lack of high-quality internet coverage** should be identified and solutions developed to close the gaps. Actions on regional and local level to insure appropriate infrastructure in rural areas appear to be crucial;
- **Shared investments, grants and other initiatives** should work together for the interest of an entire local community;
- Different levels of policies should **work together** for addressing the huge challenge represented by rural access to broadband, since each EU country and region are responsible for its own timetable for broadband roll-out;
- **The regional dimension** of the initiatives for broadening and improving the rural broadband comes out as one of the main features of the policy cases collected in this topic area through Smart-AKIS.
- Coordination and **harmonization of national initiatives for rural connectivity** to minimize the number of connection technologies and frequency bands to be used, thus to harmonize solutions proposed in different territories.

### Expected impact

- **Increasing broadband network** in rural areas as one of the main priorities of Broadband Europe, promoting the European Commission's vision and actions to turn Europe into a Gigabit Society by 2025;
- **Better access to broadband** for farmers to use new technologies and become more efficient. **Connectivity** is crucial and an adequate rural broadband will contribute to the successful adoption and uptake of SFTs;
- Development and implementation of a coherent **strategy for rural connectivity** that involves different levels of implementation: regional, national and European.



## PB7. Simplify, innovate and link existing Funding Instruments

### What is the challenge?

The EU strategy for supporting rural and agriculture innovation in Europe comprise numerous policies and EU research funding programmes. The analysis on the innovation process carried out in Smart-AKIS has provided examples and evidences of different bottlenecks and gaps hindering the development of an effective and sustainable ecosystem for enhancing innovation in agriculture and sustain rural development.

### Policy Recommendations

- Enhance the role of **cooperation** and the **involvement** of all the relevant value chains actors through multi-actor projects: role of farmers, advisors, industry-led proposed solutions and multi-stakeholders initiatives;
- **Strengthen** and **reinforce** Thematic Networks;
- Further structuring the **EIP-AGRI ecosystem** following the recommendations provided in the Smart-AKIS deliverable 3.6: "Recommendations for mainstreaming Smart Farming in Europe";
- **Promote and enhance synergies** between programmes and funding schemes (mapping, synergies with INTERREG and Erasmus+, link the EIP-AGRI and ENRD, Smallholders Farmers Act);
- **Simplify access to R&D and innovation funding** by reducing/removing red tape for access to funding and reporting. Some proposals in this direction are to: **(i)** foresee a pre-harvesting phase for the submission of proposals; **(ii)** keep some budget to fund the proposals' preparation; **(iii)** avoid single-stage proposals and opting for more stages proposals;
- Promote the further **inclusion of innovative financial instruments** (e.g. Future Internet Public-Private Partnership (FI-PPP) programme and crowdfunding-based scheme) to attract private funds as the main criterion for EC financial support.

### Expected impact

- **Complementarity of funding instruments** in the support of an investment project pipeline, pooling together resources and different actors facilitated through a set of activities;
- **Collaboration** between different actors, for instance public and private entities, in assembling Operational Groups and run innovation projects. Thematic Networks represent crucial examples of multi-actor approach;
- **Simplification** of the access to R&D and innovation funding and participation in the programme, together with a reduction of the administrative costs to participants.