

eip-agri
AGRICULTURE & INNOVATION



EIP-AGRI Workshop Enabling farmers for the Digital Age: The role of AKIS FINAL REPORT



Table of contents

1. Summary	2
2. Introduction	3
3. The workshop	4
4. AKIS accompanying the digital transformation of the farming sector	5
5. Enabling farmers for the digital age	13
6. Conclusions	19

1. Summary

On 26-27 April 2018 the European Commission's DG Agriculture and Rural Development (DG AGRI) organised the EIP-AGRI Workshop 'Enabling farmers for the digital age: the role of AKIS'. It was organised in cooperation with the Latvian Rural Advisory and Training Centre. 94 delegates from 25 European countries met in Jurmala (Latvia) to share experiences and inspiring cases, discuss needs and identify opportunities of fostering digitisation by Agricultural Innovation and Knowledge Systems (**AKIS**)¹.

Today many farmers are already benefiting from digital technologies, but barriers still exist stopping these digital technologies from being used to their full potential. The majority of farmers require support to understand and take up new technologies and to make decisions on the use of ICT which is adapted to their specific needs. This is reflected in the European Commission's (EC) Communication on "The Future of Food and Farming"² which acknowledges the huge potential that technological development and digitisation has to address current and future challenges the farming sector is facing. According to this communication, however, the uptake of new technologies "remains below expectations and unevenly spread throughout the EU, and there is a particular need to address small and medium-sized farms' access to technology." (COM(2017)713). Therefore, the overall aim of the workshop was to explore and strengthen the role of Agricultural Knowledge and Innovation Systems – AKIS (with a particular focus on **advisers** and **rural networking**), **supporting the understanding and use of digital technologies at farm level**.

The EIP-AGRI workshop focused on the double role of AKIS within digital transformation: AKIS enabling farmers to embrace digital transformation ([Section 5](#)) and AKIS benefiting from digital transformation to enhance its functioning ([Section 4](#)). More than 20 experiences and initiatives were presented by the participants during the event, and were the basis for the following reflection and discussions. The cases presented offered a comprehensive view of the existing diversity of activities enhancing uptake of digitisation in European agriculture. They showed the involvement, cooperation and targeting of different AKIS actors. Overall, the workshop supported **networking among AKIS actors in Europe** bringing together and bridging experiences of people from across Europe dealing with similar challenges and opportunities. Farmers and advisers had a central role during the workshop and field level issues were integrated into peer discussions.

2. Introduction

Digital technologies can support European farmers in providing safe, sustainable and quality food. Not only do they help farmers “produce more with less” but they also address the sustainability challenges lying ahead for the agricultural sector.

The EIP-AGRI Network has undertaken substantial groundwork for incentivising a digitised and data-empowered farming sector³. A number of activities have contributed to identifying opportunities, bottlenecks and future needs so that the European farming sector can embrace the digital revolution. These activities have highlighted that while today many farmers are already benefiting from digital technologies, barriers still exist stopping these digital technologies from being used to their full potential. The majority of farmers require support to understand and take up new technologies and to make decisions on the use of ICT which is adapted to their specific needs. This is reflected in the EC Communication on “The Future of Food and Farming”⁴ which acknowledges the huge potential that technological development and digitisation has to address the current and future challenges the farming sector is facing. According to the communication though the uptake of new technologies “remains below expectations and unevenly spread throughout the EU, and there is a particular need to address small and medium-sized farms’ access to technology.” (COM(2017)713)

The overall aim of the workshop was to explore and strengthen the role of Agricultural Knowledge and Innovation Systems – AKIS (with a particular focus on **advisers** and **rural networking**), **supporting the understanding and use of digital technologies at farm level**. The specific objectives were:

- To exchange experiences on how knowledge and innovation can support the digital transformation of agriculture, especially reflecting on the role of advisory services and national and regional rural networks
- To identify and share effective tools and methods to communicate digitisation opportunities to farmers, especially in small and medium-sized farms, across all sectors
- To gain insight into how digital technologies can transform AKIS and the opportunities they offer for improved AKIS performance – advice in particular – by identifying good and innovative practices
- To promote networking among advisers and the other AKIS actors across the EU, to exchange resources and help them make the transition to digital agriculture

In the EC legislative proposals on the Common Agricultural Policy post 2020⁵ advisory services and networking are called to play a key role in delivering a **modernised agricultural sector** within the wider framework of AKIS. The EIP-AGRI workshop therefore offered a timely opportunity for AKIS actors to exchange on good practices and reflect upon concrete ways to foster and share knowledge, innovation and digitisation and encourage uptake.

¹ The concept of Agriculture Knowledge and Innovation Systems (AKIS) is used to describe how people and organisations join together to promote mutual learning, to generate, share, and use agriculture-related knowledge and information. A great diversity of people needs to be involved in creating agricultural knowledge.

² https://ec.europa.eu/agriculture/future-cap_en

³ See the EIP-AGRI brochure: ‘Shaping the digital (r)evolution in agriculture’

⁴ https://ec.europa.eu/agriculture/future-cap_en

⁵ With particular reference to the legislative proposal on CAP strategic plans [COM\(2018\)392](https://ec.europa.eu/agriculture/future-cap_en)

3. The workshop

The EIP-AGRI Workshop 'Enabling farmers for the digital age: the role of AKIS' took place in Jurmala (Latvia) on 26 and 27 April 2018. It was organised in cooperation with the Latvian Rural Advisory and Training Centre.

94 delegates took part in the workshop from 25 European countries. The most relevant AKIS actors were represented (see chart below). The largest group of participants were representatives of extension and advisory services, followed by researchers and farmers.

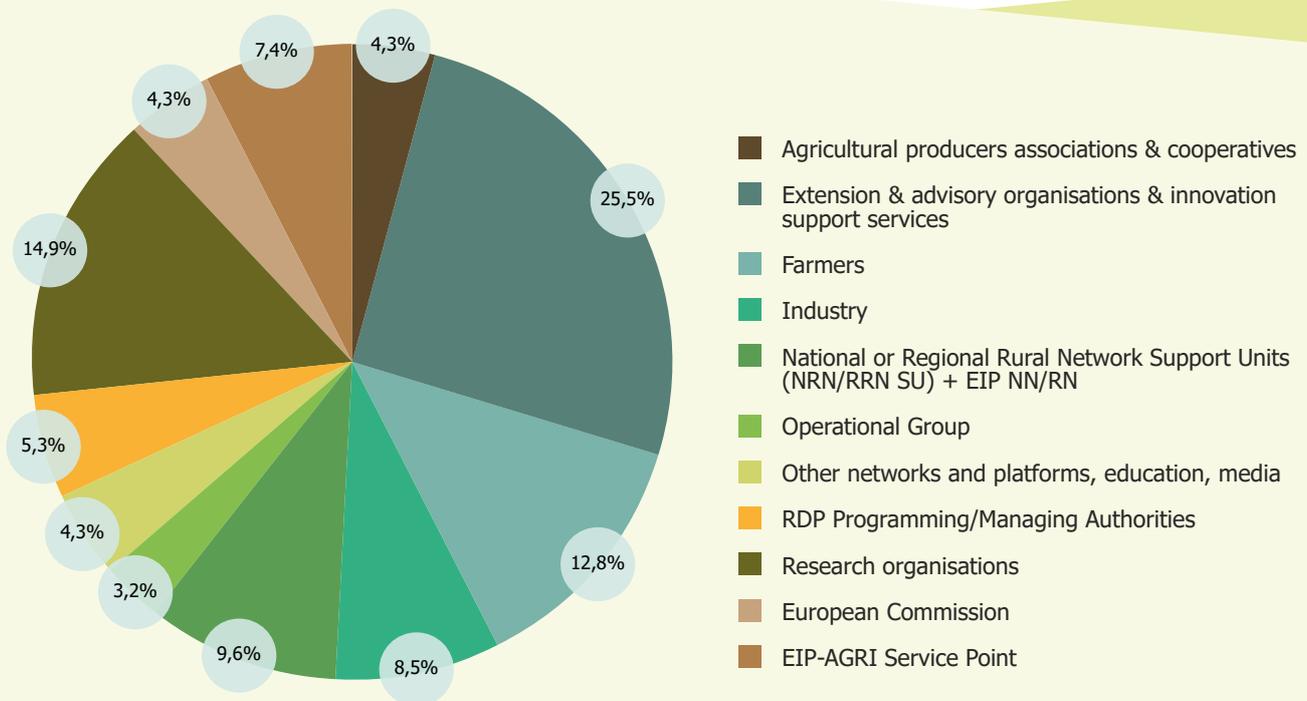


Figure 1: Distribution of workshop participants by type of AKIS actor

The programme of the workshop was designed according to its four main objectives and it included the showcasing of more than 20 inspiring initiatives promoting digitisation of the farming sector. The sessions and presentations were designed to put the participants and their contributions at the core of the event. Most of the workshop was devoted to group work and interactive discussions.

The four objectives were achieved according to over half of the delegates and 97% of participants considered the information provided and the discussions held at the workshop useful for their future activities.

Many participants were active on social media during the event. The conversation was captured in Twitter Moments, providing a nice overview of the two days, [see here](#).

4. AKIS accompanying the digital transformation of the farming sector

The combined performance of advisers, agricultural training and educational systems, researchers and farmer organisations is often referred to as the Agricultural Knowledge and Innovation System (AKIS). AKIS stand out as particularly important to support farm innovation across Europe through digital transformation opportunities. Agricultural education, research and in particular advisory services, together with the other AKIS actors, should help farmers find their place in the digital landscape. In this respect the EC communication on "The Future of Food and Farming"⁶ envisages "strengthening advisory services within the AKIS systems" and attaches great importance to knowledge, skills, advice and innovation⁷.



Figure 2: Picture representing Agricultural and Knowledge Innovation Systems (Inge van Oost, 2018)

Digitisation also leads to both challenges and opportunities for the national and regional AKIS themselves which need to update how they function and embrace the potential of new data flows and technological advances. There is a need, and there are opportunities, to upgrade communication within and between national and regional AKIS. Many existing and new data and knowledge flows could fulfil multiple purposes and be brought to a higher level through improved ICT applications in a mix of face-to-face and digital interactions.



The first part of the workshop aimed at showcasing activities contributing to knowledge exchange and innovation supporting the digital transformation of the farming sector. Ten examples working from different angles and involving different AKIS actors were presented as summarised in Table 1 below.



Table 1. Examples of activities supporting the digital transformation of the farming sector

INITIATIVE/ PROJECT	SHORT DESCRIPTION	ACTORS INVOLVED
<u>State supported services for digitalisation of Estonian agriculture</u> (Estonia)	- Creation of central electronic system to link and integrate existing data with analytical models and practical applications.- One e-portal for all agricultural support services, faster and paper free management, for clients of the Paying Agency.	Research organisations, farmers and farmer organisations, advisers, ICT companies
<u>Gaiasense smart farming system</u> (Greece)	Multidimensional smart farming system, combining information technologies with agricultural sciences in a holistic way. It supports farmers in their decision making by providing high quality advisory services for the optimisation of production, through an innovative combination of data, research outcomes, scientific knowledge & practical experience.	ICT developers (Neuropublic), Gaia Epicherein (private company, cooperatives as main shareholders), research organisations, farmers and farmer cooperatives, advisers
<u>IBERS distance learning</u> (United Kingdom)	Fully online postgraduate-level training for the pasture-based agri-food supply chain. The courses critically evaluate cutting-edge research, relating it to real situations in industry and teaching students scientific interpretation skills.	Research organisations, advisers, farmers and students
<u>SC-TRACE project</u> (France)	Optimisation of traceability of phytosanitary products and seeds by optical reading. Actors (including Farmers) all along the chain are able to recover traceability information automatically in their information system	Coop de France, FNA (national federation of agricultural traders), distributors, Phytosanitary and seeds suppliers, software companies
<u>eServices for forest owners and service providers - Metsään.fi</u> (Finland)	Open eService for managing private forest property and conducting business with third parties. The Finnish Forest Centre collects and maintains data of forest resources covering the private forests. eService has now 100 000 users and covers 12 million ha	Finnish Forest Centre, Natural Resources Institute, SMEs, forest owners, Ministry of Agriculture and Forestry

<p>Digital tools supporting farm machinery cooperatives (France)</p>	<p>CUMA are service co-operatives set up by and for farmers. Their objective: collective investment and use of machinery, building and workers for tasks directly linked to production cycles. Contribution of the National Federation of CUMA: Implementation of a specific digital tool for Cuma - Cumalink (Optimization of the use of equipment among CUMA) & partnerships with start-up to emphasise the use of digital technologies in the CUMA (on-board technologies)</p>	<p>212 000 farmers are members of a CUMA. A network of around 300 facilitators, based in 90 federations, in charge of helping farmers to develop their collective projects</p>
<p>FG on digitisation and big data in the agri-food & forestry sectors and rural areas (Spain)</p>	<p>Focus Group promoting an interactive process for the Digital Agenda setting. The FG works on: the identification of best practices and available technologies, the different challenges (through 3 axis: available technologies and its adoption; digital divide; and governance and data ecosystem) and the identification and prioritisation of barriers for digital transformation, roles that the different actors can develop in the digital transformation process and incentives (also non-economic)</p>	<p>38 experts from national and regional public administration, agricultural sector (cooperatives, farmers org., food industry, retailers), IT companies (large tech, AgTech, start-ups), advisory services (public and private), academia and research, public companies</p>
<p>ReCAP: Reinforcing CAP (EU)</p>	<p>H2020 research project which builds bridges between public administrations & farmers through the use of innovative earth observation solutions & cost-efficient tools. It addresses existing gaps in compliance & monitoring processes, while facilitating the translation of CAP into farming practices.</p>	<p>Research organisations (NOA, UREAD, DRAXIS), 635 farmers, 270 advisers, IT companies (CREVIS) and innovation support and consulting companies (INI, ETAM).</p>
<p>The Single Application (Belgium)</p>	<p>Digital tool for the registration of parcels for a range of requirements related to the Common Agricultural Policy, the Nitrates Directive and Rural Development. It is used for the direct payments, agri-environmental agreements and the calculation of legal fertilisation standards.</p>	<p>Collaboration between the Department Agriculture and Fishery and the Flemish Land Agency</p>
<p>Precision farming with elements of geoinformatics "AGRO e-learning" (Erasmus+) (EU)</p>	<p>E-learning platform for GIS supported precision farming, didactic materials, workshops on GIS and precision farming, exchange of experiences: research institutes – commercial companies, presentation of internet applications supporting crop management. The educational platform will be available for agricultural advisory services for the purpose of self-education and strengthens the application of precision farming</p>	<p>Students and teachers of agricultural schools.</p>

The cases presented offered a comprehensive view of the **existing diversity of activities enhancing uptake of digitisation in European agriculture**. They showed the involvement, cooperation and targeting of different AKIS actors. All together, they showed that the implementation of digital technologies is progressing fast and with a very practical results.

The workshop participants showed a high interest in the cases presented and raised questions about **accessibility of the tools to farmers**, the real involvement or the level of adoption by farmers and the opportunities for them to provide feedback (especially in e-learning). Besides, the participants discussed the different dimensions of **data management** in the cases presented and highlighted the key role of public administrations as data providers. There was interest also about **potential replicability** of the examples in other regions or options for collaboration within existing initiatives.

Finally, participants reflected on **AKIS actors and their relationships**, inspired by an introductory presentation by Inge van Oost on the nature of AKIS with the farmer at the centre (see Figure 2). During the group discussions, participants indicated that other actors such as consumers/citizens and public administrations (including policy makers) were also to be added to the list of relevant actors in AKIS.

Furthermore they acknowledged the diversity of the *farmer community* (rather than just considering *the single farmer*) within the AKIS ecosystem. Farmers as a collective can be seen as an AKIS in itself. Thus, within the farmers' community there are different roles in terms of learning (i.e. early adopters, followers, etc.). Besides, knowledge may be generated and exchanged at different organisational levels (i.e. peer-to-peer, groups, associations, cooperatives, unions). Finally, diverse learning approaches can be found (i.e. skills transfer between farming generations, life-long learning...). Moreover, AKIS could also be seen from a geographical perspective: local, regional, national, EU, global.

The following session of the programme focused on how digital technologies can improve the functioning of AKIS. To start the discussion, the examples of the platforms [APIAGRO](#) in France and [Bisnes+](#) in Finland were presented.



IBERS-DL @IBERS_DL 26 apr.

Observations from [@EIPAGRI_SP](#) #Finland @ProAgria provides similar KE model to #Wales @FarmingConnect. with around 45,000 farm visits per year and travel of over 5.5m km they are beginning development of online platforms to reduce their C footprint.





APIAGRO is an online data platform that gathers and cross-checks data from diverse sources in the agricultural sector. At the moment it includes more than 200 datasets from agricultural technical institutes, private companies (i.e. seed companies, agrochemical, etc.) and public administrations. The platform addresses the needs of AKIS in terms of data storage, access and visibility as well as application development. It uses Application programme interface (API) to disseminate data and services.

<https://plateforme.api-agro.fr/>



ProAgria is a Finnish expert organisation providing a broad range of rural advisory services. ProAgria is developing the platform **Bisnes+**, an online platform which intends to improve several levels of how AKIS function and especially the service provided to the farmer, i.e. access to advice (24/7) and to information or farm analysis and management (i.e. benchmarking, strategic planning)



The inspiring examples provided the basis for interactive discussions in break-out groups. The participants addressed the issue AKIS functioning; which areas need more attention and could be improved by means of digital transformation.

As expected, the results from the break-out groups highlighted that digital solutions can benefit AKIS functioning in many different ways. There are several connections and knowledge flows that can be addressed. A condensed summary is presented below:

Table 2. Potential improvement of AKIS functioning by means of digital solutions

AKIS CONNECTION	AREA OF ATTENTION	RELATED EXAMPLE(S) FROM THE WORKSHOP
Farmer-farmer	<p>There is room to improve peer-to-peer knowledge exchange. Interaction among farmers and digital technologies could support the development of this, for instance through benchmarking tools powered by data.</p> <p>This view places farmers at the centre of AKIS and acknowledges the specificity of each context and farm so that peer advice can be specifically tailored.</p>	<ul style="list-style-type: none"> • PLAID virtual farm • Bisnes+
Farmer-adviser, adviser-adviser	<p>It is paramount (for both farmers and advisers) to connect better to users' needs at a more individual level. Showing the concrete benefits to the farmer and demonstrating successful implementation from other similar cases enables real tailored advice and better communicates the available technological solutions.</p> <p>This could be in the form of an e-tool or platform for advisory services tailored to the needs of each farmer or adviser, focusing on key indicators and helping with decision-making and planning management.</p> <p>Use of big data sets and success stories, innovations and good examples from solutions which have already been implemented at farm level (i.e. from 'local heroes', as one of the participants suggested) should be combined. This would involve all AKIS actors in different ways, for example researchers providing knowledge, technology companies providing information on which technologies and digital solutions are available etc.</p>	<ul style="list-style-type: none"> • Bisnes+ • APIAGRO • Gaiasense smart farming system • eServices for Forest Owners and Service providers - Metsään.fi
Farmer-public administration	<p>The collection of data needed for administrative reasons (i.e. compliance) could be automated by using digital solutions, with commercial companies providing different technical solutions for this, making data more easily available for managing authorities. This data should be analysed precisely and efficiently and would then be made easily available to farmers. This could both provide valuable information to help with decision-making and address data security concerns which many farmers have. Making reporting to managing authorities easier and the other benefits for the farm would encourage farmers to invest in new technologies.</p>	<ul style="list-style-type: none"> • ReCAP: Reinforcing CAP • The Single Application • State supported services for digitalisation of Estonian agriculture

Farmer-consumers/ citizens	Digital technologies can increase transparency, improve traceability and enhance understanding between farmers and citizens/consumers. Digital tools for and blockchain technology could be potential solutions.	<ul style="list-style-type: none"> • SC-TRACE project
Farmers-input providers	<p>There are many production areas where the technologies which are already provided by farmers' suppliers can improve productivity and sustainability. Nevertheless, matchmaking between farmers and suppliers needs to be improved, for example ensuring that farmers' particular needs are addressed. It is also important to improve connections between the different farm suppliers, such as looking at how different technologies can be used in combination.</p> <p>Reliability of data as well as trust of farmers about the supplier's data management framework (security, privacy issues) are necessary preconditions. Public administrations can contribute to ensuring this trustworthy environment.</p>	<ul style="list-style-type: none"> • Digital tools supporting Farm Machinery Cooperatives
Research-adviser, researcher-farmer	Exchange of knowledge and new developments should be faster and better tailored. E-learning could be used. Farmers could provide researchers with a lot of data from the farm if they have modern technological solutions that enable the gathering of data. Therefore both would benefit – researchers get information from real practices rather than set-up experiments and farmers get feedback on results as well as feedback.	<ul style="list-style-type: none"> • IBERS Distance Learning • Gaiasense smart farming system • APIAGRO

In most of the cases, the workshop delegates identified several actors involved in the process of improving AKIS connections.

Overall, a number of attention points appeared through the discussions. Data management was one of these. First, it was mentioned the importance of reliable, easy and efficient collection of large quantities of data. Furthermore it was stressed the issues of data access, security, ownership and privacy, especially from the perspective of the farmer⁸. The quality of data analysis was named as important point of attention as well.

The potential added value of **data platforms** was also highlighted several times. Data platforms which allow to integrate and/or cross-check different datasets from diverse sources (i.e. different AKIS actors and organisations) increase the potential value of data concerned compared to its individual use set by set. Moreover, they are the basis for the development of new and sophisticated services that are data (and knowledge) intensive.

When different AKIS actors cooperate to provide data and applications, the services generated have a higher added value. Special attention was devoted to public administrations and the data they generate and manage, for example the data linked to CAP implementation. In that sense, **public administrations** were identified to play an important role both as data providers and in promoting an environment of trust for digital uptake by AKIS actors, especially concerning data issues.

Actions and technologies supporting peer to peer activities and processes were highlighted as essential at different levels and for different actors, not just between farmers. This can include virtual and demo farms, benchmarking tools, etc. In parallel, the **use of e-learning methods** as part of education and training in general also received a lot of attention by participants, seeing them as good opportunities to significantly enhance knowledge transfer and exchange within AKIS.

⁸ Data management issues have been extensively discussed in the [EIP-AGRI workshop 'Data Sharing: ensuring a fair sharing of digitisation benefits in agriculture'](#)



5. Enabling farmers for the digital age

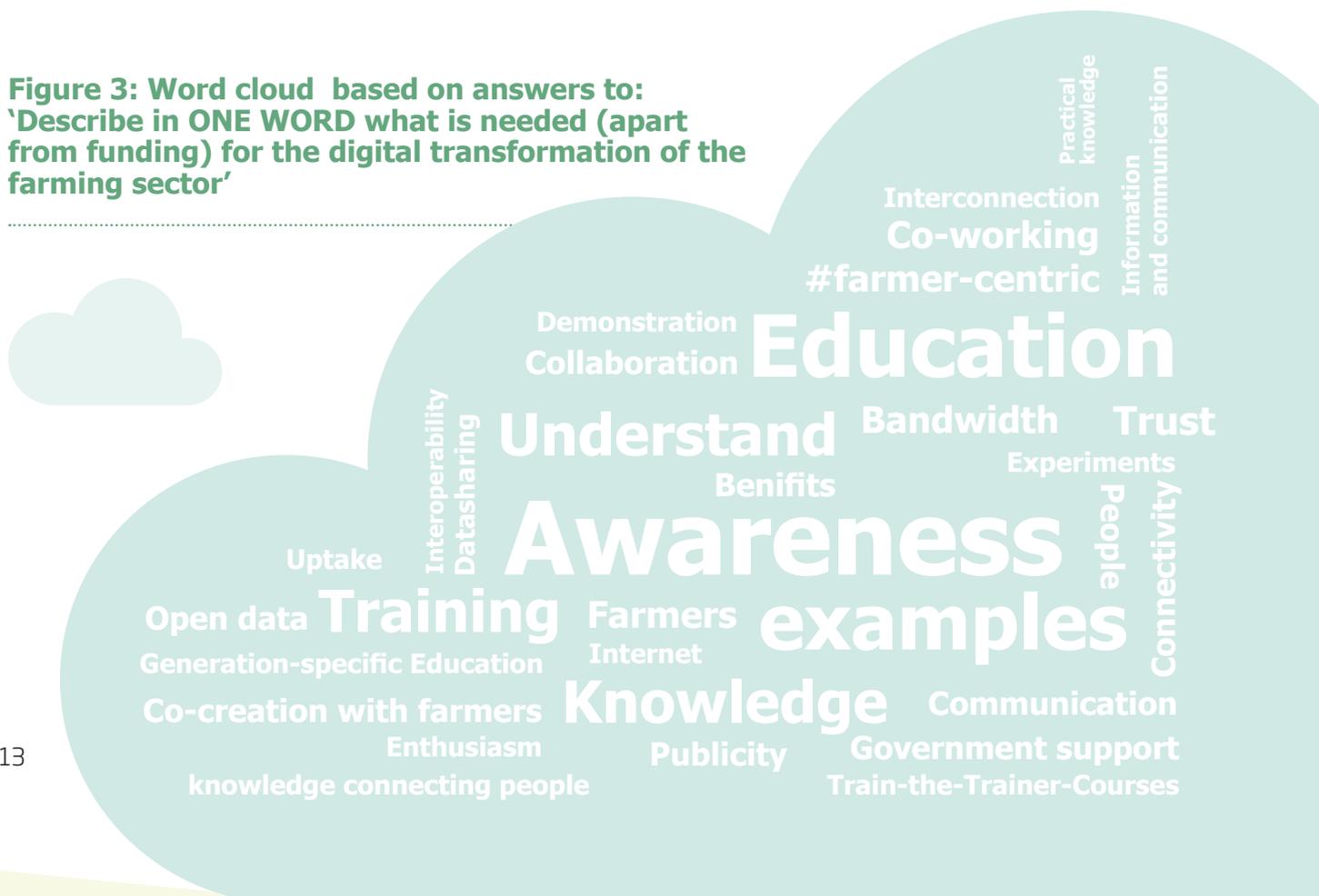
The participants recognised that many farmers need support to understand and take up new technologies and to make decisions on ICT use adapted to their specific needs. They need support to find out about and understand the digital-based solutions on offer and making the right choices for their farm. Nevertheless the situation varies throughout Europe. A common idea among the workshop participants was that there are big differences within the European farming community in terms of digital uptake. This diversity may depend on the region (some regions are front runners while others lack behind), sector (some sectors are more digitised, i.e. intensive horticulture), generation, farm size, etc. The combination of all these variables defines a **range of 'digital farmer' profiles** and therefore of farm information needs.

There was general consensus among participants that many technologies are already available, but a lack of awareness, training and education of farmers, and in some cases of advisers, hinder their adoption⁹. Besides, farmers do not see clearly what the return on investment (ROI) is when it comes to their specific situation: **each farm needs a tailored use case, digitisation plan or strategy**. On a different level, those who are already aware of technologies and the opportunities they offer, may lack trust, confidence or certainty about how and by whom the data will be used. Finally, getting extra added value from the use of those data poses some challenges and needs. For instance, some farmers could play a significant role during the development of new business models, applications, etc., but most of them lack the skills and/or the position within the AKIS ecosystem to get involved and directly benefit from that possibility. Nevertheless, farmers have expressed their interest in being involved, when possible, on the design and co-creation of digital tools from an early stage.

Overall, farmers' information needs depend on farmers 'digitisation level' or 'digital profile' which could be referred to as the combination of their awareness and skills (including digital literacy) as showed in [Figure 4](#).

⁹ Besides, participants also considered that there might still be room for improvement of tools in terms of e.g.: user-friendliness, inter-operability, added value, etc.

Figure 3: Word cloud based on answers to: 'Describe in ONE WORD what is needed (apart from funding) for the digital transformation of the farming sector'



ENABLING FARMERS FOR THE DIGITAL AGE: FARMERS' INFORMATION NEEDS

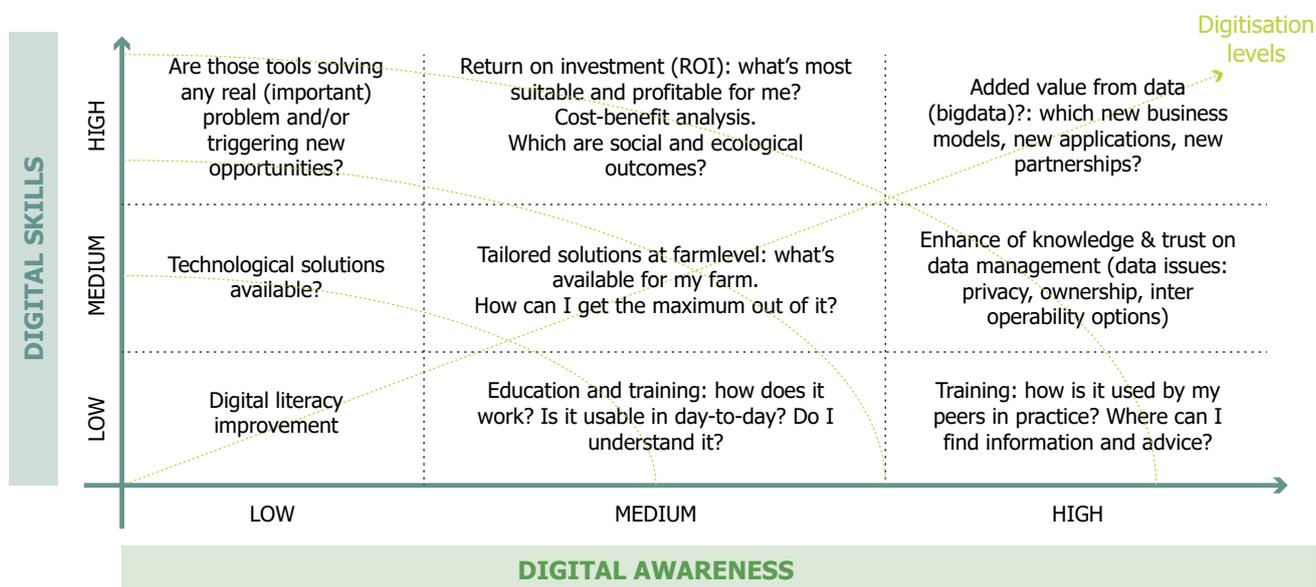


Figure 4: Farmers' information needs according to awareness and skills levels. Information needs gathered by survey during workshop pre-registration (EIP-AGRI Service Point, 2018)

The focus during second day was on **effective tools and methods to raise awareness and communicate about digitisation opportunities to farmers**, especially in small and medium-sized farms, across all sectors. A pool of eight inspiring initiatives and projects working in that direction was presented. All together these examples offer a rich compendium of actions addressing many of the different information needs showed in Figure 4 above. A summary is presented in Table 3 below.

INITIATIVE	INFORMATION NEED	ACTIVITIES CARRIED OUT	PROMOTER
<u>Limburg Agrofood</u> : supporting agri-digital community	Improvement of data management New business models and applications	Digitisation advice by Agriculture Innovation Support: a team of Innovation Brokers support farmers with advice, including digitisation. The support unit also looks into the possibility to perform as a Digital Innovation Hub ¹⁰ by teaming up with the Brightlands Smart Services Campus.	LIOF (Limburg Development and Investment Company)– The Netherlands
<u>Smart-AKIS</u> . European AKIS towards innovation-driven research in Smart Farming Technology: the Smart Farming Platform	Technological solutions available	Dissemination through an online platform of the range of Smart Farming solutions existing nowadays, coming from research results and commercial solutions. Smart-AKIS also fosters collaboration between the farming community, extension and advisory services, research and industry for the development of new R&I, demonstration and transfer projects on smart farming.	Smart-AKIS project (H2020)

Education Project "Digitisation in agriculture & forestry"	Education and training on digital technologies	Several work packages which aim to integrate new technologies and tools into the broad educational programme of LFIs: <ul style="list-style-type: none"> • lkdigital.at gives a first initial contact and shows where farmers can find continuing materials • training for trainers, as advisers, teachers and course instructors. • courses e.g. on farm management information systems, the use of drones in agriculture or the application of telematics in arable farming (with farmers experiences at the centre). 	Federal Institute for Rural Education and Training (LFI) (Austria)
IoT-catalogue. - Supporting IoF2020 Ecosystem	Technological solutions available. Tailored solutions at farm level	Web-based catalogue and decision-support tool for solutions based on the Internet-of-Things (IoT) technology. It brings IoT users and technology providers together, from domain needs to IoT products (and back) via validated solutions with components, assembly guides, and more. It is expected to build a community of farmers and technology providers, starting on IoF2020	IoF2020 (H2020) Unparallel Innovation Lda.
Digital Start-up advisory service (4D4F)	Training, information and advice: sharing peers experience	Create a community of practice to share, debate, disseminate and support the implementation of innovative approaches to dairy management. Develop standard operating procedures which can be integrated into the decision making process on farm.	4D4F project (H2020)
PLAID Virtual Farm	Education and training: how does it work? Technological solutions available	Development of a "Virtual Farm" to give access to on-farm demonstration across Europe. Visitors to the farm watch 2D and 3D videos produced by farmers, enabling peer-to-peer learning.	PLAID project (H2020)
SEMS – Smart Economic Monitoring Systems of production and operation costs related to precision and high mechanization	Return on investment: what's the most suitable and profitable for my farm?	EIP Operational Group ¹¹ establishing an online system for monitoring the economic sustainability of farms' production systems in Emilia-Romagna region, Italy.	CRPV - Centro Ricerche Produzioni Vegetali - Italy
MIKA DATA – Operational Group	Enhance of knowledge and trust on data management	Building of an intelligent data analysis service, where the farmer can observe and analyse time series data of remote-sensing-based vegetation indexes, crop yields, and other features related to the growth of the crops. In this service, the farmer will see, e.g., variations in soil types and nutrient levels.	Tampere university of technology – Finland

¹⁰ For more information on the topic, take a look at the results of the [EIP AGRI Seminar on Digital Innovation Hubs](#)

¹¹ For more information on EIP Operational Groups: <https://ec.europa.eu/eip/agriculture/en/my-eip-agri/operational-groups>

Accordingly, the group work on the second day of the workshop aimed at creating increased awareness actions addressing farmers' information needs. Actions such as communication, activities/events, training, educational activities, etc. Participants were suggested to use the [storytelling method](#). Like the day before, each group of participants was invited to take the role of a fictional AKIS - therefore addressing the objective of co-creating and cooperating to 'experience' the functioning dynamic of an AKIS. Three different break-out groups focussed on a specific theme, namely 'farmer age', 'farm size' and 'farm location'. The objective was to reflect whether any of these variables influence the type of awareness/communication action to be designed and implemented.

The session was introduced by the presentation of the [EkonMOD milk](#) example.

The EkonMOD milk tool is used to evaluate the economic impacts of different on-farm strategies. It integrates applications developed in the sphere of dairy cow husbandry into one platform. The Slovak cooperative AGB Benus is contributing to the development of the tool while seeking to manage the transition to robotic milking and feeding and to evaluate the possible combinations of dairy cows grazing pastures with robotic milking systems.



Inspired by the examples previously presented and trying to address the information needs identified on day 1, the groups outlined several types of actions (see [Figure 5](#)). Groups were requested to: 1) identify the information need to be addressed; 2) describe the type of action and; 3) mention which AKIS actors would be involved and with which role.

The information needs that received the most attention were those linked to enhancing the farmers' knowledge about available technologies as well as the education and training needed to adopt them within the particular circumstances and objectives of each farm. This is reflected in [Figure 4](#): lower and medium levels of digitisation. This shows that, despite the discussions addressing complex issues on data management, ROI or new business models, **the most frequent situation in Europe is that farms, especially small and medium sized farms, are in the first digitisation phases**. According to the workshop participants, many farmers are still getting acquainted with the technologies and their possibilities. Therefore most actions were aiming at communicating digitisation opportunities, showcasing existing solutions at farm level and from practical perspective.

The idea of the farmers at the centre of AKIS was reinforced here as well as their double role both at the demand and supply side of knowledge. **Farmers** were identified as **key actors in many communication/awareness raising proposals in different types of activities**: mentoring, on farm demonstration, cross visits, peer to peer exchanges, on farm testing, community expert groups and networks, etc. In these cases **advisers are equally seen as facilitators/trustees** and as knowledge providers. Farmers, especially the ones who are already engaged, who have 'success stories' and who are front runners are also called upon to be ambassadors and trainers.

At the same time, and in line with the discussion of the functioning of AKIS ([section 3](#)), the plural dimension of the farming community appeared as significant. **The diversity within farming community** (i.e. combining old and young farmers, front runners and followers, etc.) **is a value that can be used in awareness raising and communication actions.** Different actions proposed the creation and promotion of communities, networks and platforms of farmers for knowledge exchange and trust building.

It was a shared opinion that **both analogical (live, face to face) and digital approaches and tools need to be combined.** In fact, traditional means such as TV, radio, newspapers or magazines are fundamental parts of many of the designed activities, especially those devoted to older farmers. ICT tools (social networks, virtual demo farms, e-learning, webinars, etc.) are seen as complementary and would serve especially to broaden the audience and to improve the information flow and connection with the other AKIS actors.

In both cases, it is critical to adapt the content of the actions to the particular needs of the farmers and, consequently, devising a good communication strategy to attract their interest focusing on the added value for them. Moreover, if ICT tools are used it should be ensured that they are accessible by target groups and must be easily applied in the field.

Networks and communities can be either developed, strengthened or enlarged by means of digital technologies and, at same time, they are powerful means for spreading out digital opportunities. This fact shows how digital transformation and social innovation may interact and go along mutually reinforcing

“Farmers have been hearing about technology but they don’t always understand it. The real issue is communication, change management, access, generational renewal...the real barriers are ‘people’”

- Andrew Lacenvy, CEO Innovation for Agriculture. -



Following the same rationale, workshop participants also highlighted **the importance of considering normal daily working conditions on the farm when organising communication actions, especially to guarantee inclusiveness (i.e. ensuring full involvement of women on those actions).** This would imply considering the timetable, the seasonality, the need to use ready-to-go information for attracting interest, to make use of friendship connections, to promote the testing on own devices on the spot, etc.

The three themes proposed to frame each of the break-out groups (size of farms, geographical location, age of farmers) were generally not highlighted in the discussions. However, considerations about the age of farmers received attention when it came to the type of tools to be used, for example for younger farmers the use of social networks and other ICT solutions within the action were more preeminent.

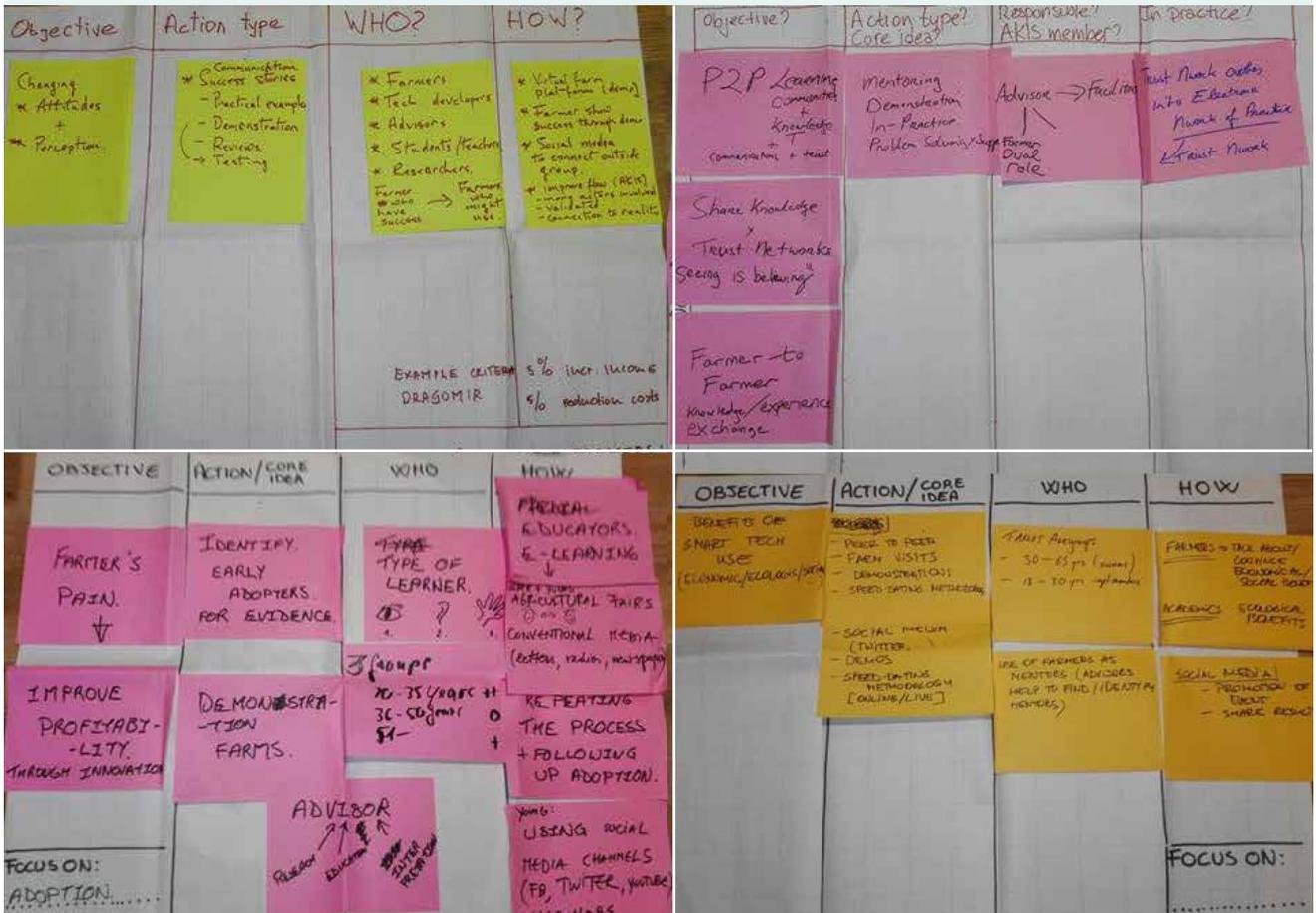


Figure 5: Outline by participants of potential communication/awareness raising actions

Dragons' Den: the farmers' edition. Ideas for communication & awareness-raising actions developed by the groups during the break-out sessions on the second day were presented to a farmers panel. The panel, formed by four farmers from different corners of Europe, gave their opinion on the proposed initiatives and selected the 'best' according to them. The winning group proposed an innovative speed-date approach to connect young and old farmers to trigger digital uptake.



6. Conclusions

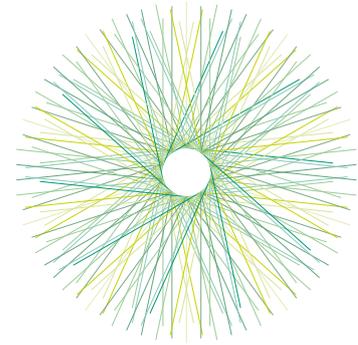
Participants in the workshop acknowledged the value of the event. According to a participant, the workshop “gave a thorough understanding of the factors at play as well as providing good contacts”. Overall the audience considered that the activity contributed to “expand the digital agricultural community” while providing “lots of ideas valid for implementing with different actors” in different regional contexts. Therefore it both supported the **networking among AKIS actors in Europe** as well as brought together and bridged experiences across Europe dealing with similar challenges and opportunities. Farmers and advisers had a central role during the workshop and field level issues were integrated into peer discussions.

The workshop participants representing a ‘sample’ of AKIS actors in Europe, it showed how the different stakeholders are committed to enhancing cooperation to facilitate the uptake of digital technologies at farm level. This process depends both on **technical and social factors**, the latter being highlighted at different moments during the event. In line with this, many of the outcomes of the workshop focus on innovative ways of combining renewed peer and group interaction with the broader use of ICT tools and tailoring them to farmer needs and expectations.

The workshop was part of a number of activities within the EIP-AGRI network that have looked into opportunities, bottlenecks and future needs for the European farming sector to embrace the digital revolution.

Related Publications	Related Events
EIP-AGRI Brochure Shaping the digital (r)evolution in agriculture EIP-AGRI Factsheet Digital evolution EIP-AGRI Brochure Agricultural Knowledge and Innovation Systems	EIP-AGRI Focus Group ‘Mainstreaming precision farming’ EIP-AGRI Seminar ‘Data revolution: emerging new data-driven business models in the agri-food sector’ EIP-AGRI workshop ‘Data Sharing: ensuring a fair sharing of digitisation benefits in agriculture’ EIP-AGRI Seminar ‘Digital Innovation Hubs: mainstreaming digital agriculture’ Agri-Innovation Summit 2017

The Digital Skills and Jobs Coalition: taking action to boost digital skills in Europe		
<p>The Digital Skills and Jobs Coalition brings together Member States, companies, social partners, non-profit organisations and education providers, who take action to tackle the lack of digital skills in Europe.</p>	<ul style="list-style-type: none"> • Train 1 million young people for digital jobs, in particular unemployed people • Support the upskilling and retraining of the workforce and in particular support small and medium enterprises (SMEs) • Modernise education and training • Redirect and make use of available funds to support digital skills • Awareness raising of all citizens 	<ul style="list-style-type: none"> • More than 360 Members in all sectors – including agriculture • 100 “pledges” - concrete commitments, to act for digital skills http://pledgeviewer.eu/ • Pledgers have offered trainings to nearly 4 million people • 18 National Coalitions • European Digital Skills Awards – Finalist 2017: • ZLTO “Successful digital communication from farmers to consumers and citizens in the Netherlands” • Digital Opportunity Traineeships initiative • EU Code Week – 1.2 million participants in 2017



eip-agri
AGRICULTURE & INNOVATION



The European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI) is one of five EIPs launched by the European Commission in a bid to promote rapid modernisation by stepping up innovation efforts.

The **EIP-AGRI** aims to catalyse the innovation process in the **agricultural and forestry sectors** by bringing **research and practice closer together** – in research and innovation projects as well as through the EIP-AGRI network.

EIPs aim to streamline, simplify and better coordinate existing instruments and initiatives and complement them with actions where necessary. Two specific funding sources are particularly important for the EIP-AGRI:

- the EU Research and Innovation framework, Horizon 2020,
- the EU Rural Development Policy.



funded by  European Commission



Join the EIP-AGRI Network & Register via www.eip-agri.eu

www.eip-agri.eu | +32 2 543 73 48 | servicepoint@eip-agri.eu | Koning Albert II-laan 15 Conscience Building | 1210 Brussels | Belgium