



European Commission



AGRI RESEARCH FACTSHEET DIGITAL TRANSFORMATION IN AGRICULTURE AND RURAL AREAS

Why do R&I on agricultural and rural digital transformation matter?

Digital technologies have the potential to revolutionise agriculture by helping farmers work more precisely, efficiently and sustainably. Data-driven insights can improve decision-making and practices and help increase environmental performance while making the job more attractive to younger generations. Digital technologies also have the potential to offer consumers greater transparency as to how their food is produced. They offer opportunities to renew business models in value chains by connecting producers and consumers in innovative ways. Beyond farming, digital technologies are key to make rural communities more attractive,

smart and sustainable, reducing problems related to remoteness and improving access to services. Research and innovation are vitally important to facilitate and accelerate digital transformation in agriculture and rural areas for the benefit of European citizens and businesses. The EU has been active in the last years undertaking R&I activities laying the ground for digitised and data-empowered European agriculture and rural areas. Strategic interventions support the uptake of digital technologies, increased R&I investments to develop new digital solutions and the crucial assessment of the socio-economic impacts of digitisation.

Digitisation transformation under Horizon 2020 Societal challenge 2



17

Projects or expected grants



163 M€¹

EU contribution 2014-2020



145

Participations in selected projects

Key themes

Resource use – Robotics – IoT
Sustainability – Precision agriculture
Services in rural areas - Impact

¹ Including 50 M€ from the LEIT & SC6 Work Programmes

Digital transformation under EIP-AGRI activities

Focus group: Precision farming	bit.ly/2ur1093
Seminar: Data revolution: emerging new business models in agri-food	bit.ly/2GfJ5U5
Seminar: Digital Innovation Hubs: mainstreaming digital agriculture	bit.ly/2ra5flu
Workshop: Data Sharing: ensuring a fair sharing of digitisation benefits in agriculture	bit.ly/2GEXIUe

EIP-AGRI operational groups working on digital technologies

A number of EIP-AGRI innovation projects (Operational Groups) are already developing solutions based on digital technologies to address practical problems or opportunities in the farming sector. Currently available data show that around 10% of **Operational Groups work on precision farming or digital transformation**. Examples include:

- **Aqua C+** (Germany) develops an internet based data platform for improving water use efficiency in orchards. The project analyses concrete producer needs, and develops a mobile app and a simple, intuitive user guid-

ance for farmers. bit.ly/2GklyNx Blog: www.aquacplus.de - 2016-2021

- **Innovative use of emerging technologies to improve pig production efficiency** (United Kingdom) The aim of the project is to control or eliminate production-limiting diseases by the innovative application of emerging technology, actively driving management changes on farm with the support of a knowledge transfer network. bit.ly/2GF1ux5 - Started in 2016.

SC2 Collaborative Projects – Agricultural and rural digital transformation

SMART-AKIS www.smart-akis.com Total cost: 2 M€ EC contribution: 2 M€ Coordinator: Agricultural University of Athens Mar. 2016 – Aug. 2018	SMART-AKIS aims at setting up a self-sustainable Thematic Network on Smart Farming Technology designed for the effective exchange of knowledge between research, industry, extension and the farming community in order to disseminate direct applicable research and commercial solutions and capture grassroots level needs and innovative ideas.
4D4F 4d4f.eu Total cost: 2 M€ EC contribution: 2 M€ Coordinator: Innovation for Agriculture Mar. 2016 – Feb. 2019	Data Driven Dairy Decision For Farmers (4D4F) aims at developing a network for dairy farmers, dairy technology suppliers, data companies, dairy advisors, veterinarians and researchers to improve the decision making on dairy farms based on data generated by sensors. It will focus on the role which dairy animal and environmental sensors can play in collecting real time information to help make more informed decisions in dairy farming.
IoF2020 www.iof2020.eu Total cost: 35 M€ EC contribution: 30 M€ Coordinator: WUR Jan. 2017- Dec. 2020	The IoF2020 project aims to accelerate adoption of Internet of Things (IoT) to secure sufficient, safe and healthy food and to strengthen competitiveness of farming and food chains in Europe. It will consolidate Europe's leading position in the global IoT industry by fostering a symbiotic ecosystem of farmers, food industry, technology providers and research institutes.

PANTHEONwww.project-pantheon.eu

Total cost: 3,1 M€

EC contribution: 3,1 M€

Coordinator: Rome Tre

University of studies

Nov. 2017 – Oct. 2021

PANTHEON aims to develop the agricultural equivalent of an industrial Supervisory Control And Data Acquisition system to be used for precision farming in large hazelnut orchards. It will design an integrated system where unmanned robotics components move within the orchards to collect data and perform some of the most common farming operations. The information will be stored in a central unit that will integrate the data coming from the different robotic units to perform automatic feedback actions and to support the decisions of agronomists and farmers.

ROMIbit.ly/2GmjZTs

Total cost: 3,9 M€

EC contribution: 3,9 M€

Coordinator: Institute of

Advanced Architecture of

Catalonia

Nov. 2017 – Oct. 2021

ROMI will develop an open and lightweight robotics platform for microfarms. Assisting in weed reduction and crop monitoring, these robots will reduce manual labour and increase the productivity. Land robots will also acquire detailed information on sample plants and will be coupled with a drone that acquires more global information at crop level. Together, they will produce an integrated, multi-scale picture of the crop development that will help the farmer monitor the crops to increase efficiency in harvesting.

AfriCultuReS

Total cost: 8,5 M€

EC contribution: 8,5 M€

Coordinator: GMV Aerospace

and defence

Nov. 2017 – Oct. 2021

AfriCultuReS aims to design, implement and demonstrate an integrated agricultural monitoring and early warning system based on remote sensing that will support decision making in the field of food security. It will deliver a broad range of climatic, production, biophysical and economic information, for various regions in Africa. It will apply geospatial science natural resource management, biodiversity conservation, and poverty alleviation.

Interesting activities under other Horizon 2020 sections

Several other parts of Horizon 2020 are actively supporting digital transformation in agriculture and rural areas.

The **LEIT-Information and communication technologies** part of Horizon 2020 supports very promising actions. Its section on **Digitising European Industries (DEI)** will offer some cross-sectoral integration activities. The following actions will build the bridge between the agricultural Digital Innovation Hubs and Platforms, and the other DIH's and platforms (e.g.the ones on robotics):

- DT-ICT-06-2018: Coordination and Support Activities for Digital Innovation Hub network
- DT-ICT-13-2019: Digital Platforms/Pilots Horizontal Activities

Some already funded Horizon 2020 projects examples include:

European Research Infrastructures (including e-Infrastructures):

- **SMARTCOW:** integrated infrastructure for increased research capability and innovation in the European cattle sector – EC Contribution: 5 M€ - bit.ly/2I5I1CQ - Feb 2018 to Jan 2022

SME-Instrument:

- **ECOLUP:** Smart collect points as an innovative logistic solution to shorten fruit and vegetables supply chain - EC contribution: 50.000 € - April 2017 to Sep 2017
- **PhytSigns:** Real-time plant monitoring based on bio-electrical signals – EC contribution 50.000 € - Oc 2017 – Feb 2018

Societal Challenge 6: Europe In A Changing World - Inclusive, Innovative And Reflective Societies:

- **RECAP:** Personalised public services in support of the implementation of the CAP – EC contribution: 2,1 M€ - www.recap-h2020.eu – May 2016 to Oct 2018

A full result pack on digital agriculture shows achievements and projects in this field.

In the pipeline – 5 projects to start under 2018 SC2 calls (42 M€)

Socio-economic impacts of digitisation of agriculture and rural areas	(1 project, 5 M€)
ICT innovation for agriculture - Digital Innovation Hubs for agriculture	(2 projects, 20 M€)
Enabling the farm advisor community to prepare farmers for the digital age	(1 project, 7 M€)
Digital solutions and e-tools to modernise the CAP	(1 project, 10 M€)

Funding opportunities - Open SC2 & LEIT-ICT calls for 2019 (41 M€) - 2020

SFS-08-2018-2019 –Improving animal welfare B [2019] Precision livestock farming	(1 project, 6 M€)
SFS-31-2019 - ERANETs in agri-food A [2019] ICT-enabled agri-food systems	(1 project, 5 M€)
DT-ICT-08-2019: Agricultural digital integration platforms	(2 projects, 30 M€)
DT-ICT-09-2020: Digital service platforms for rural economies	

Shaping the digital (r)evolution

The activities mentioned are underpinned by a comprehensive approach based on 3 pillars:

1. **Research and innovation** to develop new technologies and business models
2. Improving the **uptake** of new technologies in agriculture and rural areas
3. Analysing & managing the **impact** of digitisation in agriculture and rural areas

The European Commission and the EIP-AGRI Service point organised in 2017 a stream of events which informed policy discussions on these issues:

- **EIP-Workshop** ‘Data Sharing: ensuring a fair sharing of digitisation benefits in agriculture’
4-5 April 2017, Bratislava (Slovakia) bit.ly/2GEXIUe
- **EIP-AGRI Seminar** ‘Digital Innovation Hubs: mainstreaming digital agriculture’
1-2 June, Kilkenny (Ireland) <https://bit.ly/2ra5flu>
- **Agri-Innovation Summit’s workshops** ‘Digitising rural economies’
11-12 October 2017, Lisbon (Portugal)
www.aislisbon2017.com

- **Horizon 2020 event** ‘Digitising agriculture and food value chains’
17 November 2017, Brussels (Belgium)

bit.ly/2kjNrD8

More information on EU’s approach to and activities on digital farming:



EIP-AGRI brochure on the digital (r)evolution

<https://bit.ly/2ihGn50>



CORDIS result pack on precision farming

<https://bit.ly/2pQeAwS>