



THIS PROJECT HAS RECEIVED FUNDING FROM
THE EUROPEAN UNION'S HORIZON 2020 RESEARCH
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AGREEMENT N. 696294

#DYNAMICAGRI #SMARTFARMING



THE FUTURE OF AGRICULTURE IN EUROPE: SMART FARMING LEADS THE WAY

SMART-AKIS
CONFERENCE



smartAKIS
Smart Farming Thematic Network

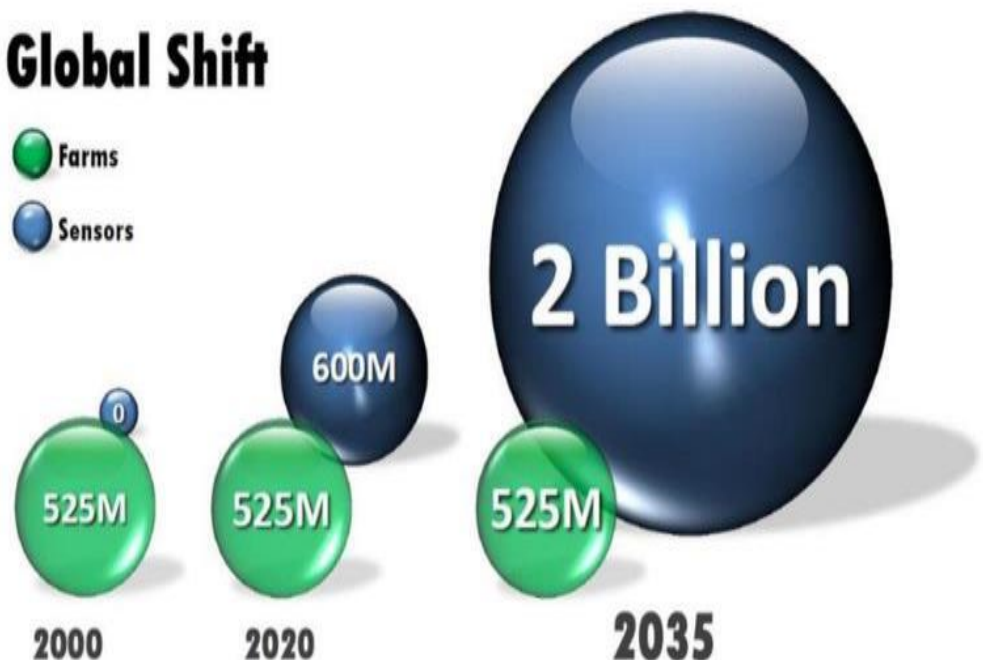
SMART-AKIS HIGHLIGHTS

Smart-AKIS Overview

Spyros Fountas - Agricultural University of Athens
Thanos Balafoutis - CERTH – iBO

What are we addressing?

Global Shift







0.5 kB/corn plant/year

2250 acres per 2 GB thumb drive

- Amazon charges \$0.36/GB/yr for storage.
- Raw data storage cost approaches \$300/yr for 5,000 ac farm with 10 years of data

Defining attributes for

- Leaf
- Ear
- Stalk
- Tassel
- Root Mass

0.85 kB/plant/yr

Growing Conditions

Crop + Soil + Weather + Irrigation

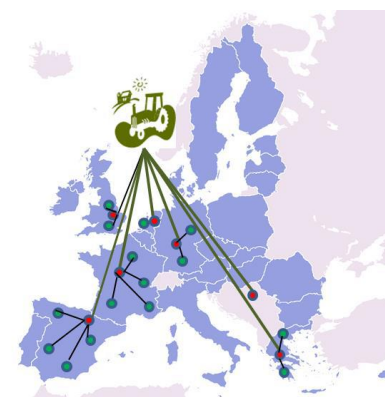


Image courtesy of Corn and Soybean Owners / Michigan Farms

Precision Ag Data Generation - Today

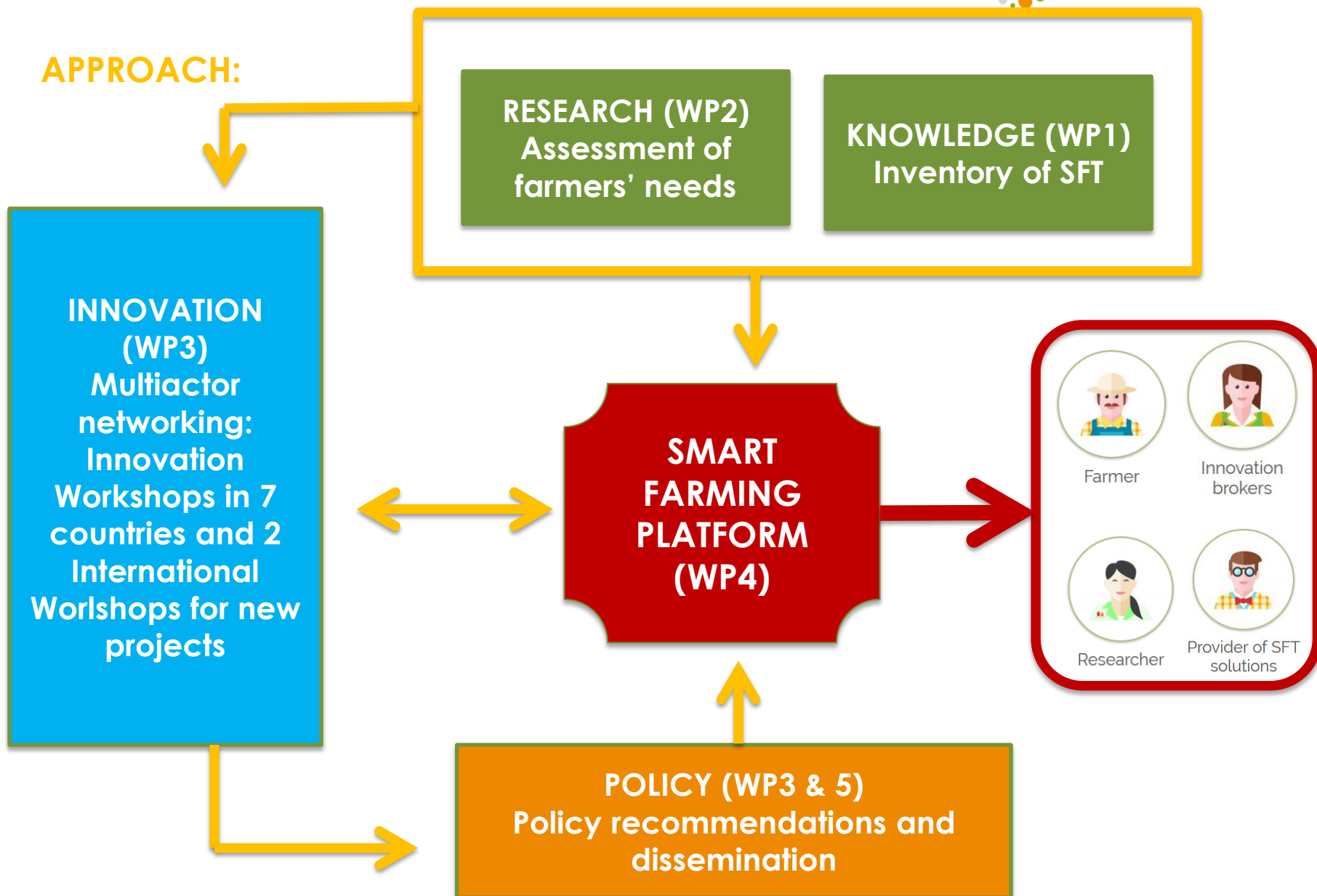
Source: <http://bit.ly/1KUVVoR>

- **FOCUS:** Smart Farming technologies: Application of ICT into Agriculture, leading to a Third Green Revolution:
 - ✓ Information Management systems.
 - ✓ Precision Agriculture.
 - ✓ Automation & Robots.
- **APPROACH:** Involvement of a wide range of actors of the Agricultural Knowledge and Innovation Systems (AKIS) following a “MULTI-ACTOR” approach:
 - ✓ Farmers,
 - ✓ Research,
 - ✓ Industry
 - ✓ Extension Services / Consultants / Advisors.



SMART AKIS PARTNERS:



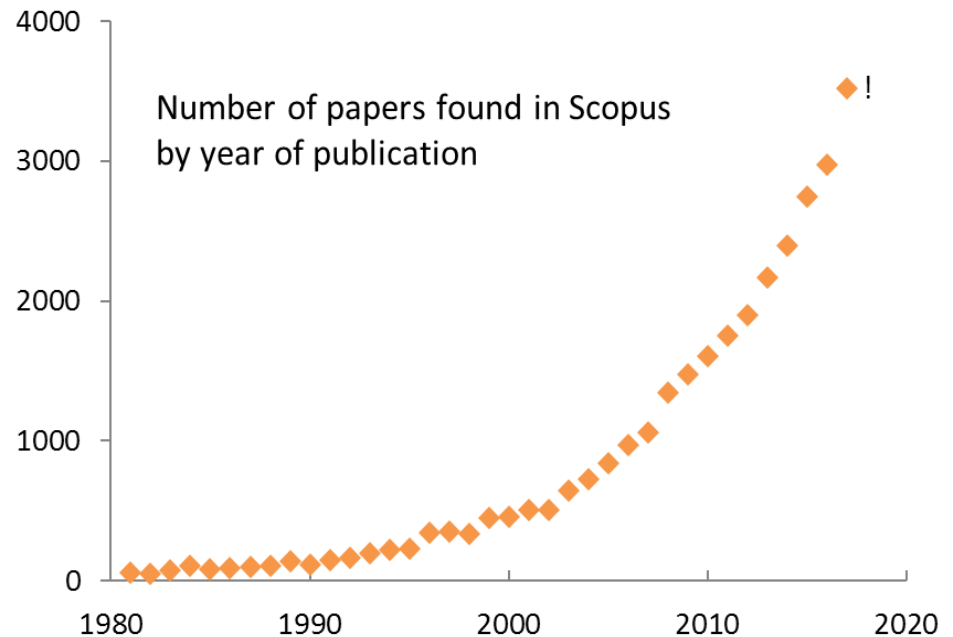


Knowledge

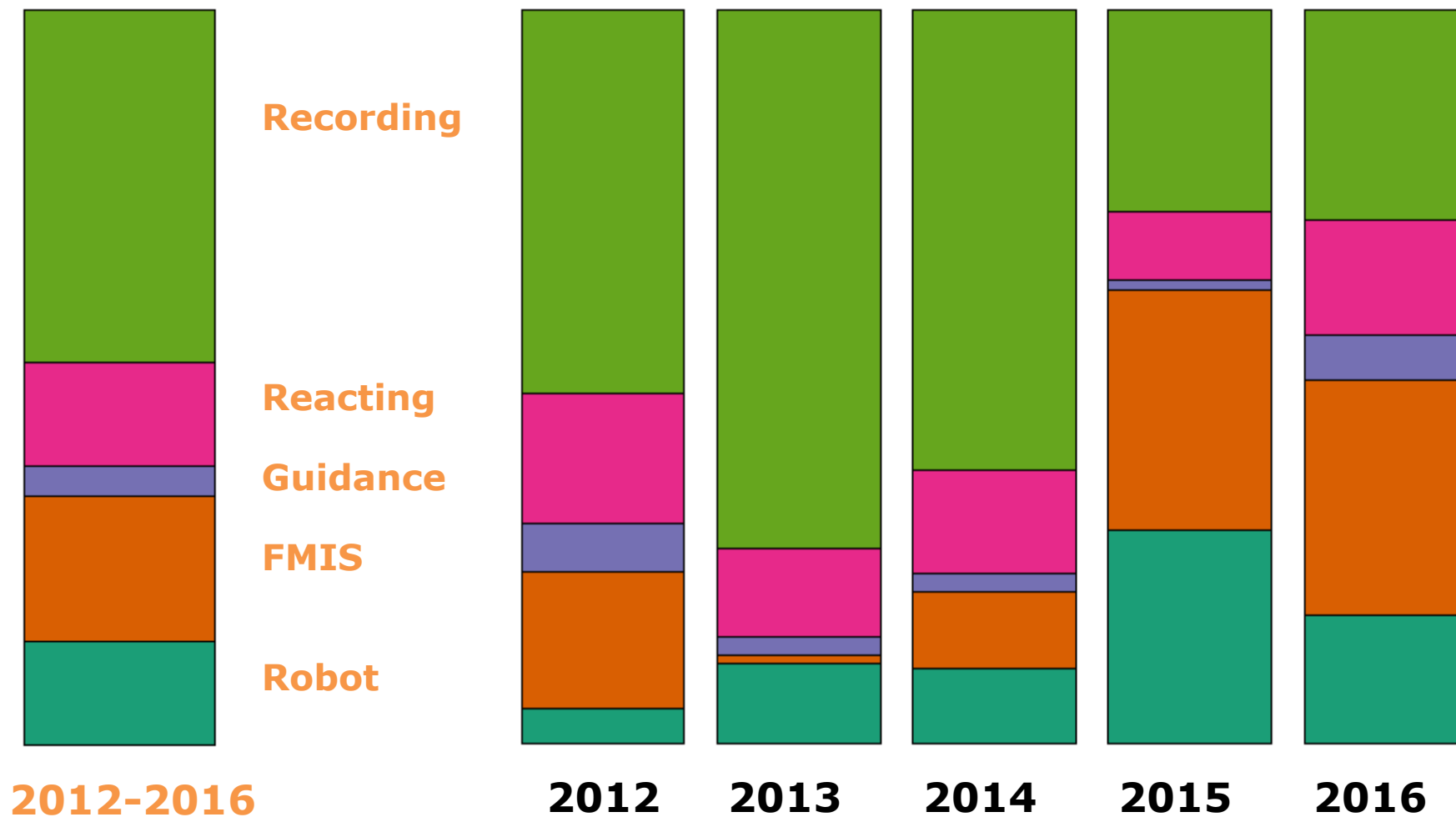
**Koen van Boheemen
Wageningen University & Research**

Smart Farming Technologies Survey

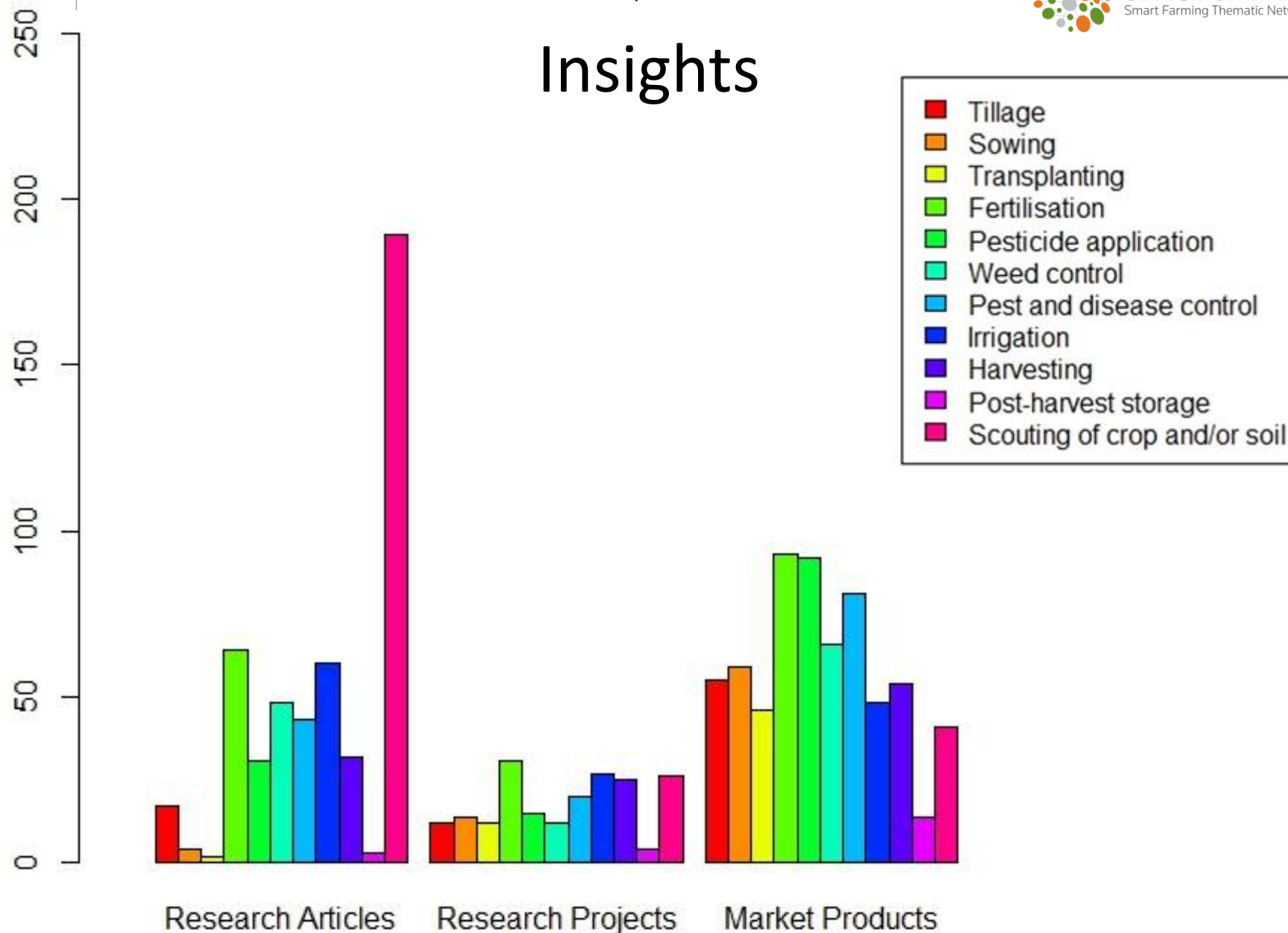
- Smart farming technologies (SFTs) hot in research
- > 15,000 entries manually assessed
 - Relevance for farmers
 - Availability of information
- 1447 SFTs identified
 - **951 research articles**
 - **81 research projects**
 - **415 industry solutions**



Trends



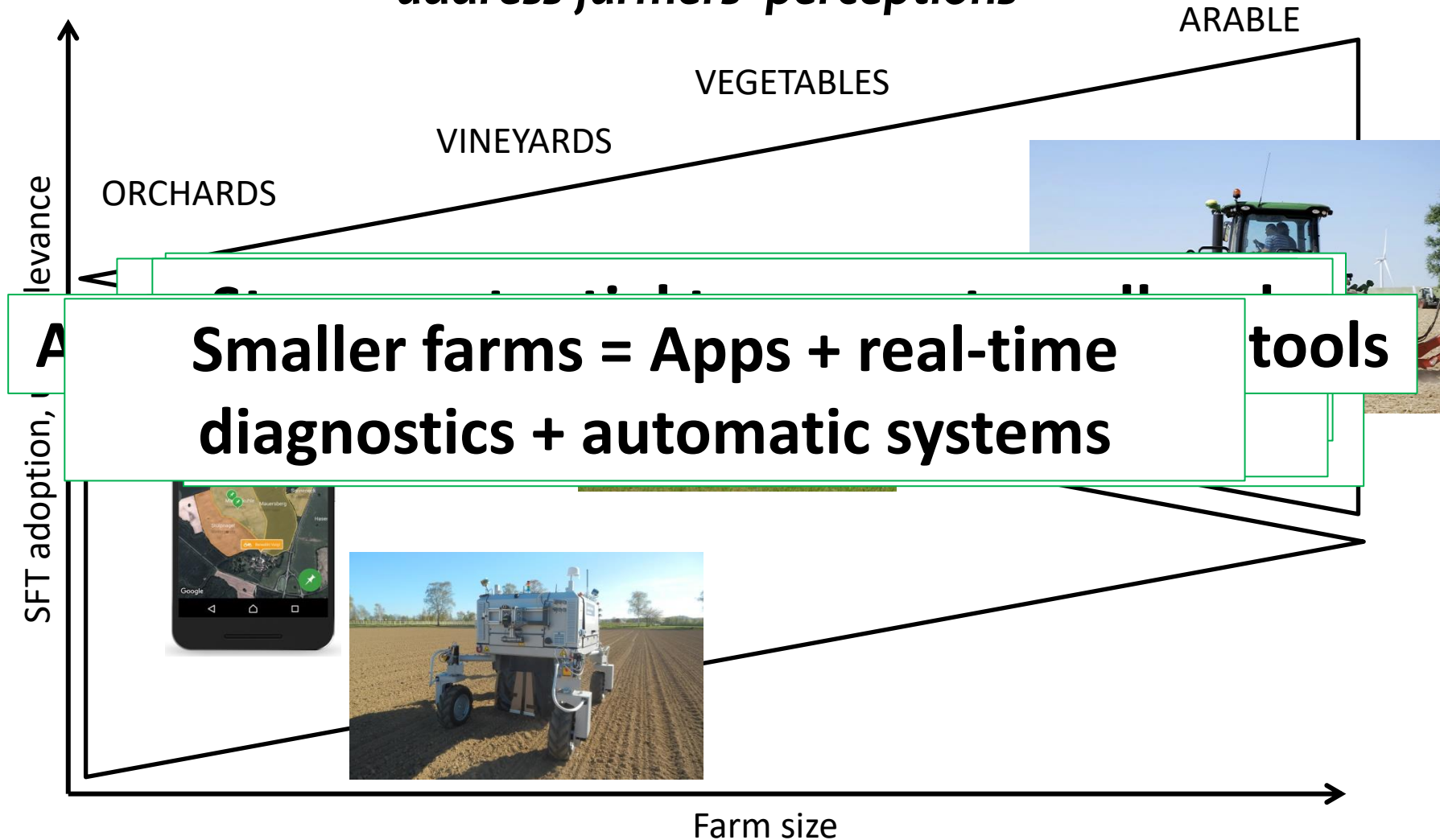
Insights



Research

Maria Kernecker
ZALF

(1) To be relevant for farms, SFT need to reflect farm context and address farmers' perceptions



(2) Improve „soft system“ to improve the „hard system“

- **ASKING AND LISTENING TO THE FARMERS:** Farmers experiment!
- **Farmers + experts suggest improving:**
 1. **Access:** information, costs, infrastructure
 2. **System:** compatibility, interoperability, consolidation
 3. **Device:** efficiency, reliability, complexity
 4. **Data level:** mobility, transfer, conversion into information, security
- **Government funds infrastructure + sets thresholds**
- **Inspiration, motivation, and open attitude by innovators**

(3) *Social interactions matter: cooperation, information, education*

➤ **COOPERATION is crucial**

- Include farmers throughout innovation process
- Expand research-practice partnerships



➤ **ACCESS to INFORMATION in the AKIS:**

- Private advice, of *Neutral and fair information!* ers, and agri-tech providers matter most
- Info on SFT at professional and trade fairs important
- Demonstrations allow farmers to assess

➤ **EDUCATION is key** for fostering adoption and explaining/advising SFT use.

Smart-AKIS Stories

	Innovative Product	Innovative Practice
Initiation	<ul style="list-style-type: none"> • Knowledge and personality • Cooperation between founders and farmers 	<ul style="list-style-type: none"> • Infrastructural and technology readiness • farmers' experimentation with CTF • Demonstrations • Public regulations
Implementation	<ul style="list-style-type: none"> • New actors on board with investments • Won a number of awards 	<ul style="list-style-type: none"> • Information support • Media coverage • Training of technicians by companies for better advice • Farmer-to-farmer communication
Dissemination	<ul style="list-style-type: none"> • Contact to universities to reach next generation farmers • EU funding • Connecting with larger industry partners reaching farmers • EU training for capacity building 	<ul style="list-style-type: none"> • Farmer-to-farmer communication • Information support via promotion by companies, farm journals, training by associations • Greater variety of equipment • Subsidies supporting new practices

Smart-AKIS Stories

2012: Idea inception



2013: initial spark

Blueberry field
Lack of information
3-person team – 50% of full-time salary dedicate to App development

Several closed pilots

February 2014

Platform launched



5 permanent employees

First large user – apple producer from Osijek a)

2014: Seed money from several private investors
≈153.000€

11.2014.: Startup Nations Summit – 1st place
50.000 \$

06.2016.: South Central Ventures
1.000.000 \$

- The best start-up – CESA
- Pioneers Challenge Vienna
- Food Tech challenge Milano

2015: 10.000 users in 150 countries

H2020 FRACIALS
90.175€

03.2017: Penetration to other market

Employed Country Enterprise Sales Manager

33 permanent employees

Ready2Go project

Strategy for foreign market penetration

Plan for 2023:

500 – 1000 permanent employees
100.000.000 users

Multi-Actor Innovation

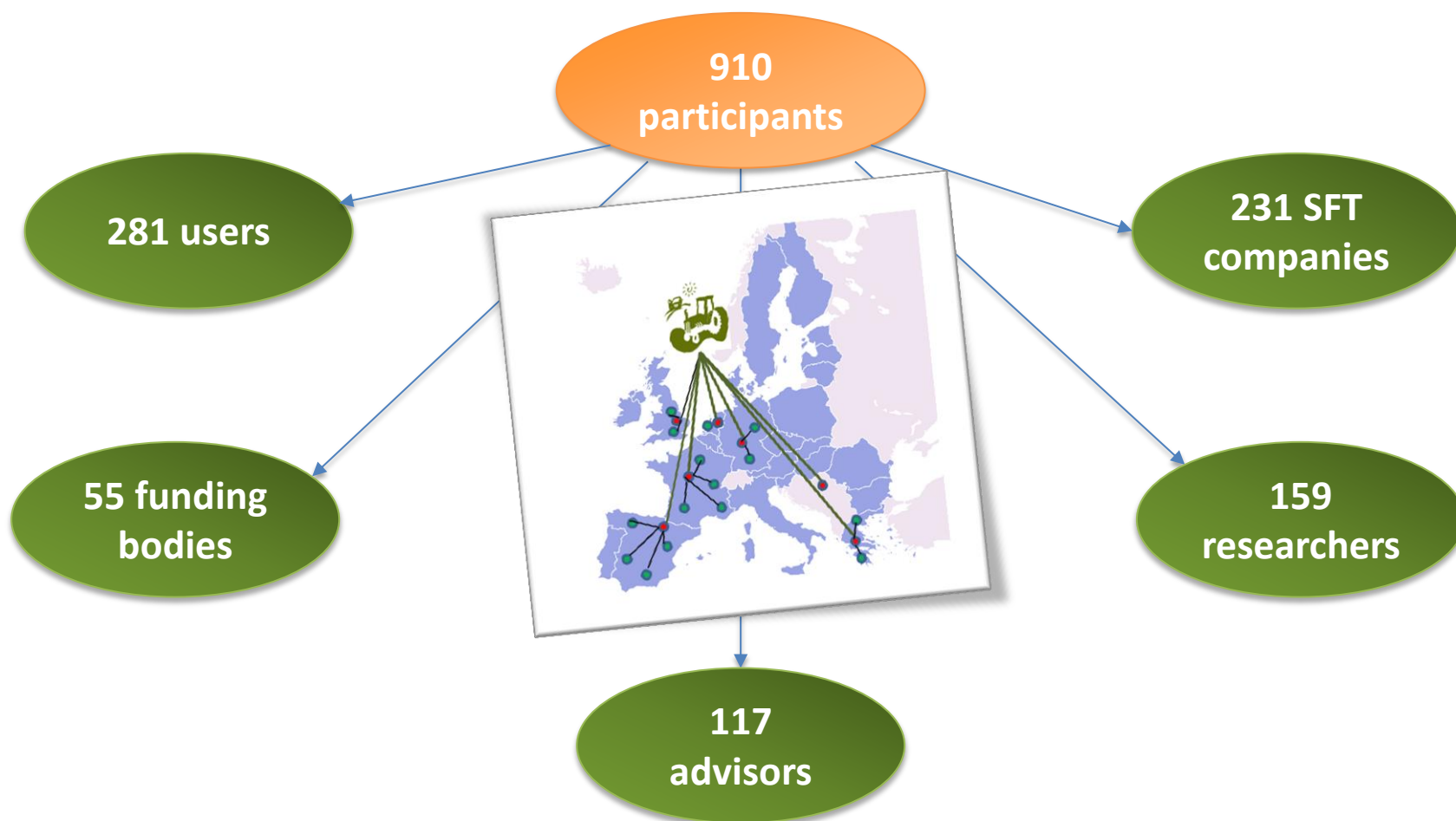
Samy Ait-Amar – ACTA

David Tinker - David Tinker & Associates - EurAgEng

The multi-actor approach in Smart-AKIS

7 Regional Innovation Hubs :

France, Germany, Greece, Netherlands, Serbia, Spain, UK



The multi-actor approach in Smart-AKIS

Bring together agricultural actors to:



Present research results and commercial products



Identify barriers and incentives



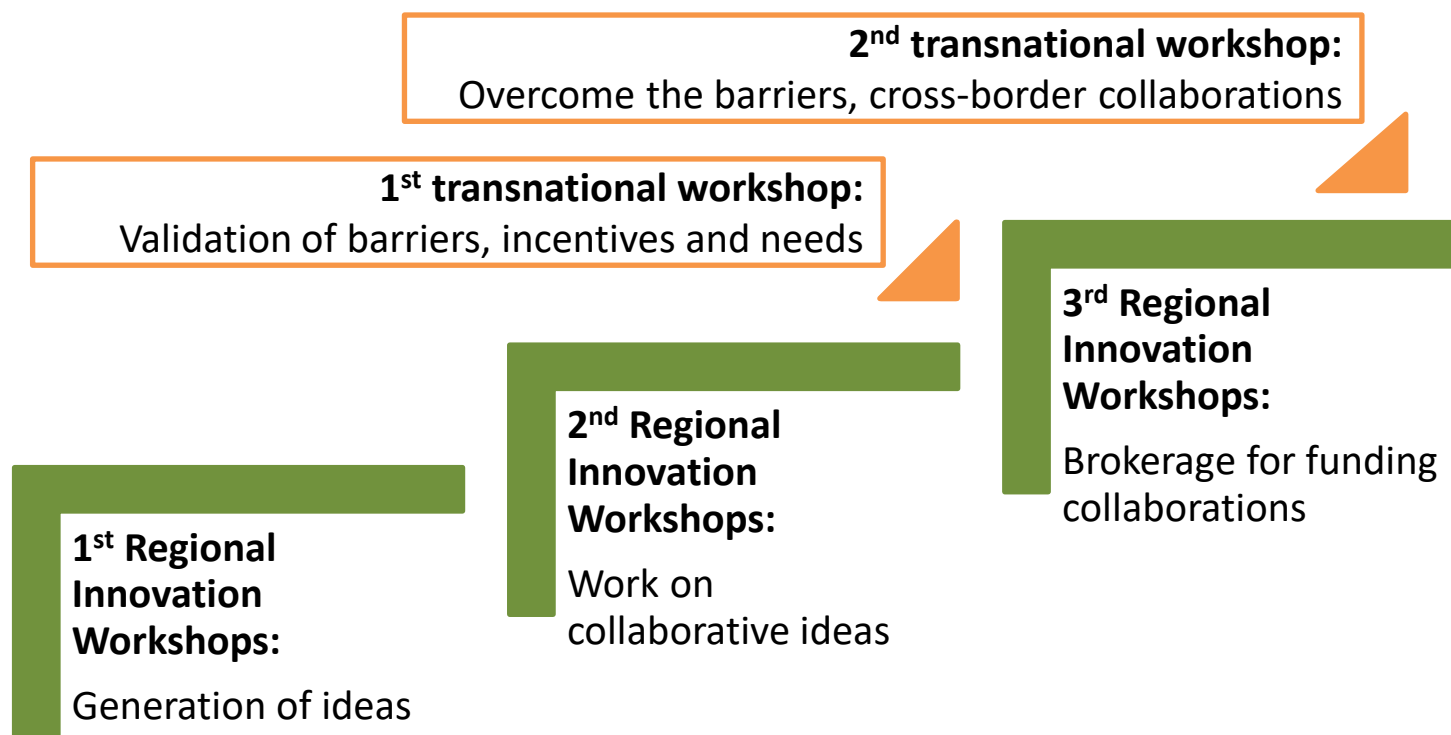
Capture grassroots level needs and ideas



Foster collaboration among actors

The multi-actor approach in Smart-AKIS

Methodology



The multi-actor approach in Smart-AKIS

Key performance indicators

>100 presented technologies

Barriers and incentives

34 needs for research

35 project ideas

**16 transnational projects
ideas**



How to get the best from Knowledge Exchange.

Farmers, advisors, technology, techniques, farming systems, Precision Agriculture, Knowledge Exchange

We know that farmers listen to farmers, attend demonstrations, read journals but still some developments are very slowly adopted (CTF), yet others can be quite quick (auto-guidance). What can be done to make all Knowledge Exchange more effective and get to the “roots”?

Objectives of your project

- Consider aspects of research into practice and what works best.
- Why does some work well, other not?
- What are the fundamental aspects, including social science that impact on KE?
- Form a consortium of e.g. suitable partners to improve effectiveness of KE and extend to advisors.



Activities you want to carry out

- *Study fast and slow KE of technologies and systems (e.g. auto-guidance and CTF).*
- *Find suitable partners with practical experience and results.*
- *Involve outside researchers (e.g. social scientists) to add new light.*
- *Develop training programme for advisors, technology developers and system developers.*

Stakeholders involved so far and their role

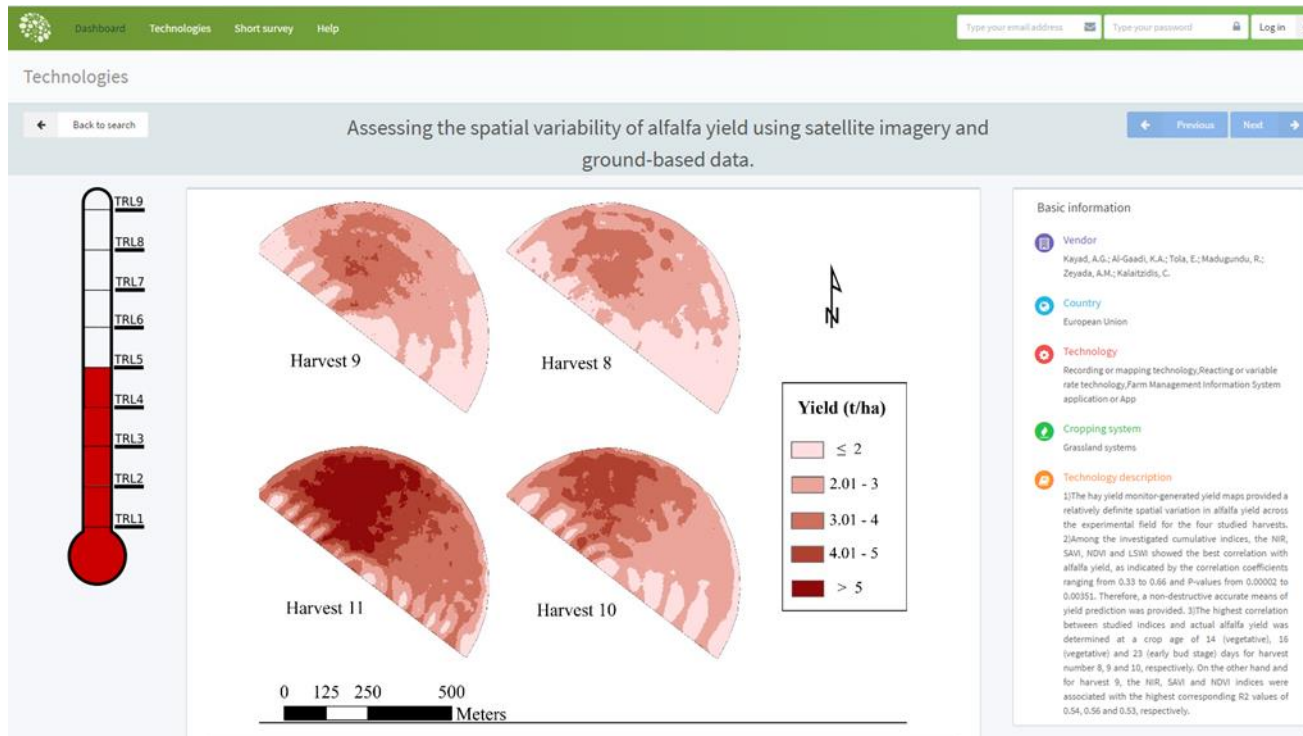
- *Agri-research /advisory organisation considering needs for improved KE (especially applied to precision agriculture)*
- *Possible social science researchers (e.g. via ESRC)*

We are looking for international and UK knowledge from research organisations that may have suitable results to build on and/or form joint project and experienced social scientists.

Smart Farming Platform

Milica Trajkovic
BioSense Institute

Smart Farming Platform



<https://smart-akis.com/SFCPPortal>
[Demonstration](#)

Smart Farming Platform

Top 10 Popular Tech	
1	Veris MSP3 soil scanner
2	GAIA InFarm Smart Farming Services
3	N-eXpert
4	Drone designed for agriculture G
5	sigAGROasesor
6	Agriculture Remote Aerial Sensing
7	TARGIS-VRA (Variable Rate Application)
8	QUHOMA
9	FFARM Farming From Aerial Remote Mapping
10	Smart.Plant

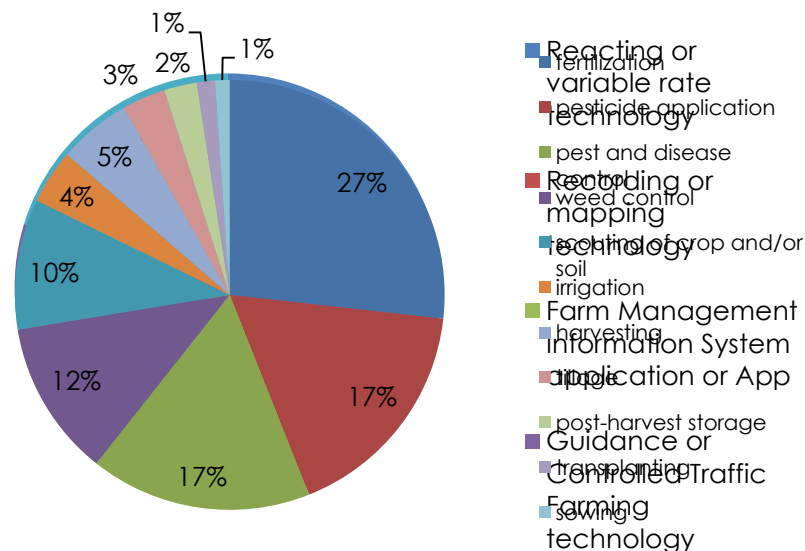
Top searched words:

Irrigation, Dron, John Deere, Dacom, Robot, Sensor, Vineyard, variable rate, ISOBUS, GPS

662 registered users

1,447 projects, products and papers

415 products from 263 companies



Dissemination

Ion Gorriti
Iniciativas Innovadoras

Dissemination

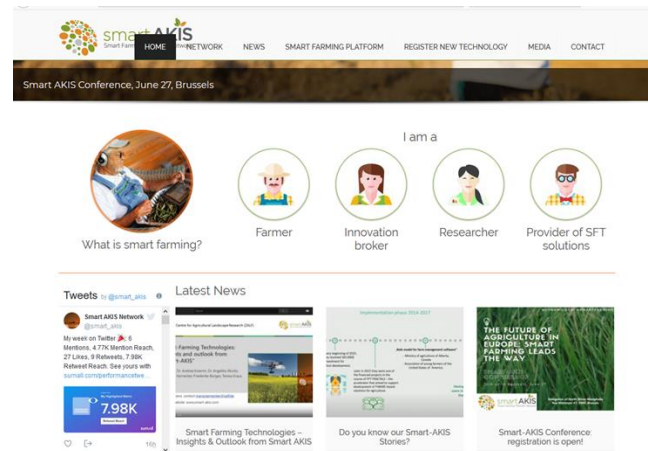
DIGITAL COMMUNITY

Web: 3,000 visitors each month

Twitter: +1,700 Followers

Facebook: 500 Followers

Platform: +650 users



#smartfarming #digitalfarming #dynamicagri #smartakis

Dissemination

EVENTS & NETWORKING

Participation at +70 non-project events:
AgriResearch Conference, FOOD2030,
AgroInnovation Summit, Agritechnika,
SIMA, EIP-AGRI Workshops, etc

Networking with EIP-AGRI and 8
Networks and Multi-Actor projects



#smartfarming #digitalfarming #dynamicagri #smartakis

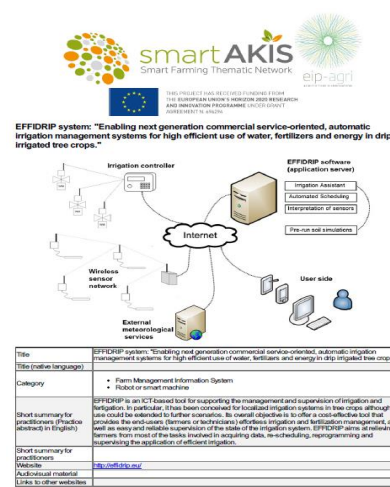
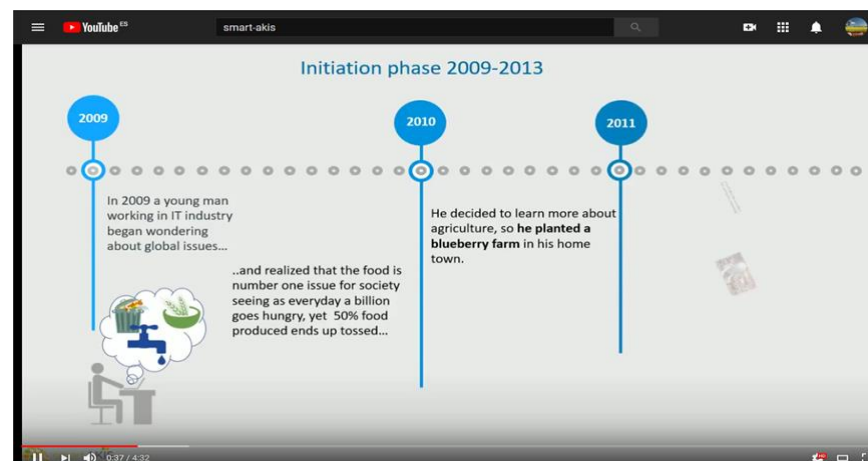
Dissemination

END-USER MATERIALS

+1.000 Technology Factsheets

78 Practice Abstracts

6 Smart-AKIS Stories



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