The need for a higher integration of precision farming technologies

Digital farming

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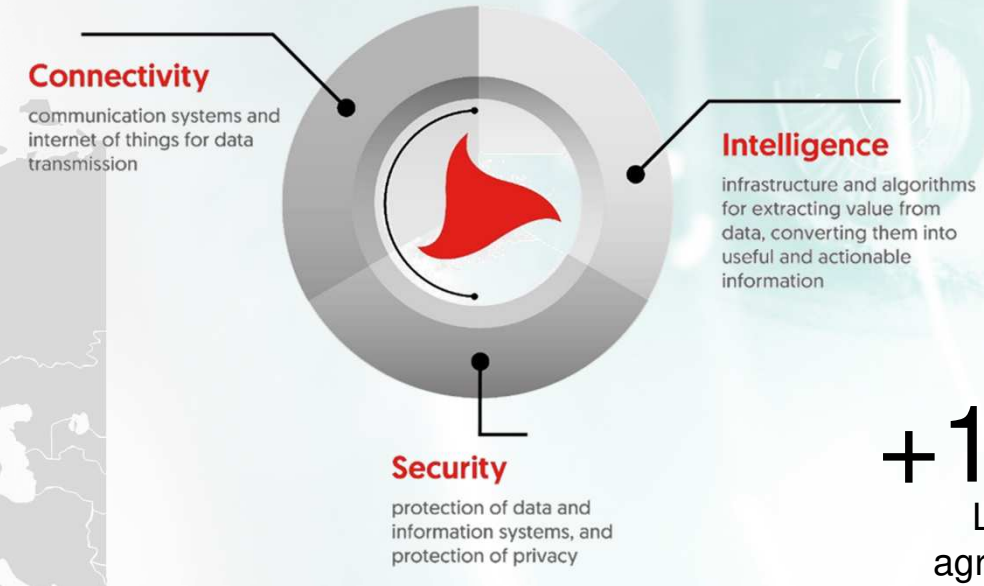
2019

About gradiant

Research and Technology Organization (RTO) in Galicia, Spain, created in 2008

Industry-oriented R&D



+170
customers

+250
Projects developed with companies

+100
Licensing agreements

About AIOTI

Alliance for Internet of Things Innovation

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AIOTI is the multi-stakeholder platform for stimulating IoT Innovation in Europe, bringing together small and large companies, start-ups and scale-ups, academia, policy makers and end-users and representatives of society in an end-to-end approach.

More than 150 members

More than 500 individuals

About WG06 `Smart farming & food security

Mission: to become the **key meeting point** of EU-based stakeholders interested in the benefits of the **IoT** (tech, ecosystem, infrastructure) in the domains of farming for **food production** and **food safety**, **from farm to fork**, addressing the sectorial challenges

Scope:

- Farming domains: agriculture, livestock, aquaculture
- Technologies
- Farming & food ecosystems
- Policies
- Projects and pilots

Facts:

- 68 member entities, 103 delegates (as of today)
- Monthly conf. calls for progress update - **join us!**

Chair: gradiant

Co-chair: JOHN DEERE

Diversity of members: ICT companies (large and small) consultancy services, research centers, and relevant members from demand side:

- Representatives of farmers and cooperatives, representatives of agriculture machinery, ...
- 2 of the largest ag-machine manufacturers (which are AIOTI founding members)
- …

Examples of activities

- Position and recommendations on digital innovation hubs for agriculture
- 5G use cases in smart farming
- R&I priorities for Horizon Europe
- Collaboration with Brazil IoT Chamber
- Recommendations for monitoring of the new CAP through ICT technologies
- **On-going**: IoT data marketplaces in smart farming and agri-food

INTRODUCTION

The global context of digital farming

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9000 million inhabitants in 2050 → **+70% food**

Increasing economic pressure → **Difficult sustainability**

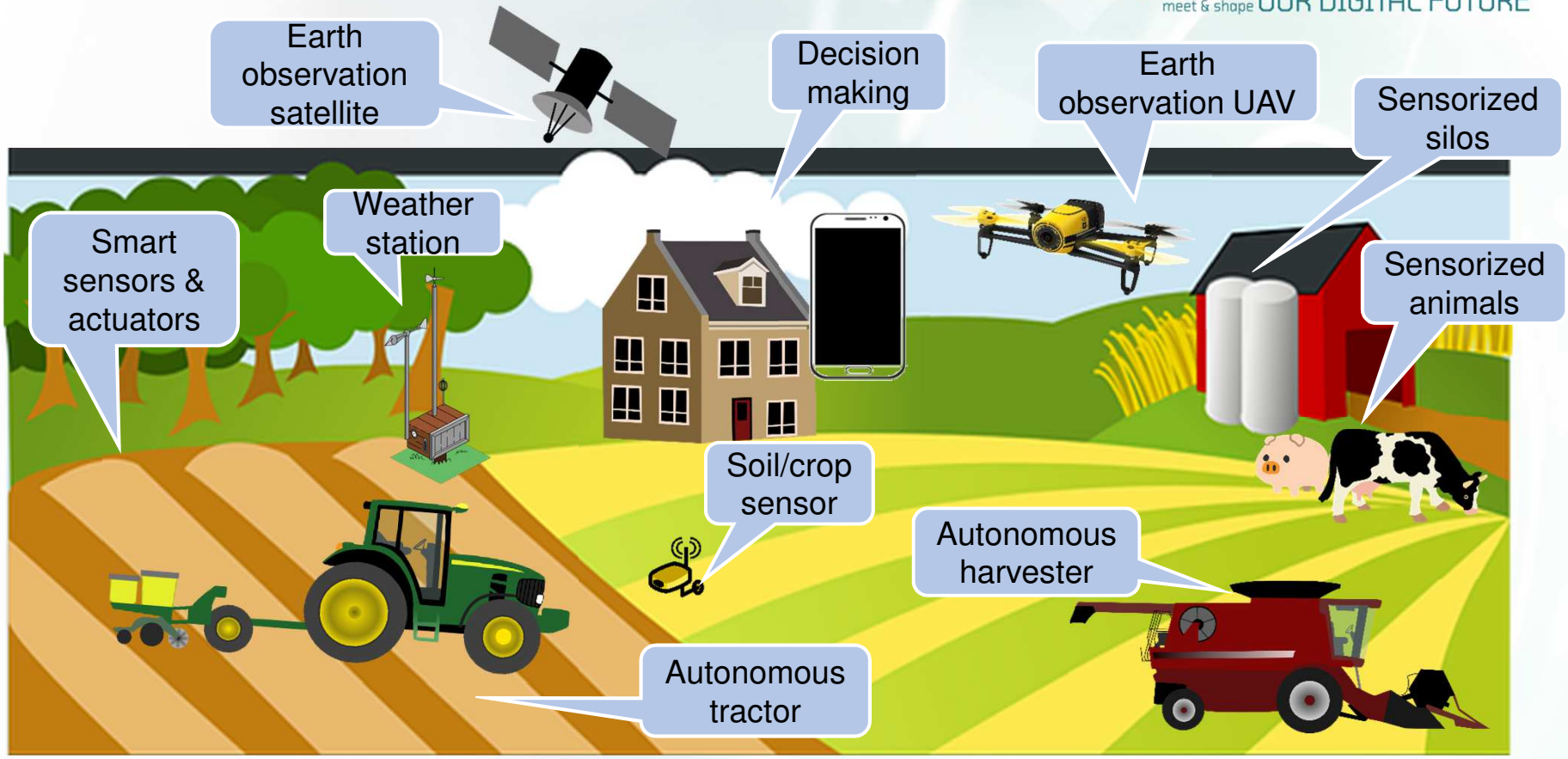
Rural depopulation → **Reduction of farm land**

Climate change → **Reduction of farm land + pressure on farming activity**

The global context of digital farming

CHALLENGE

Digital Farming: filling in the gaps



Landscape of activities in Europe

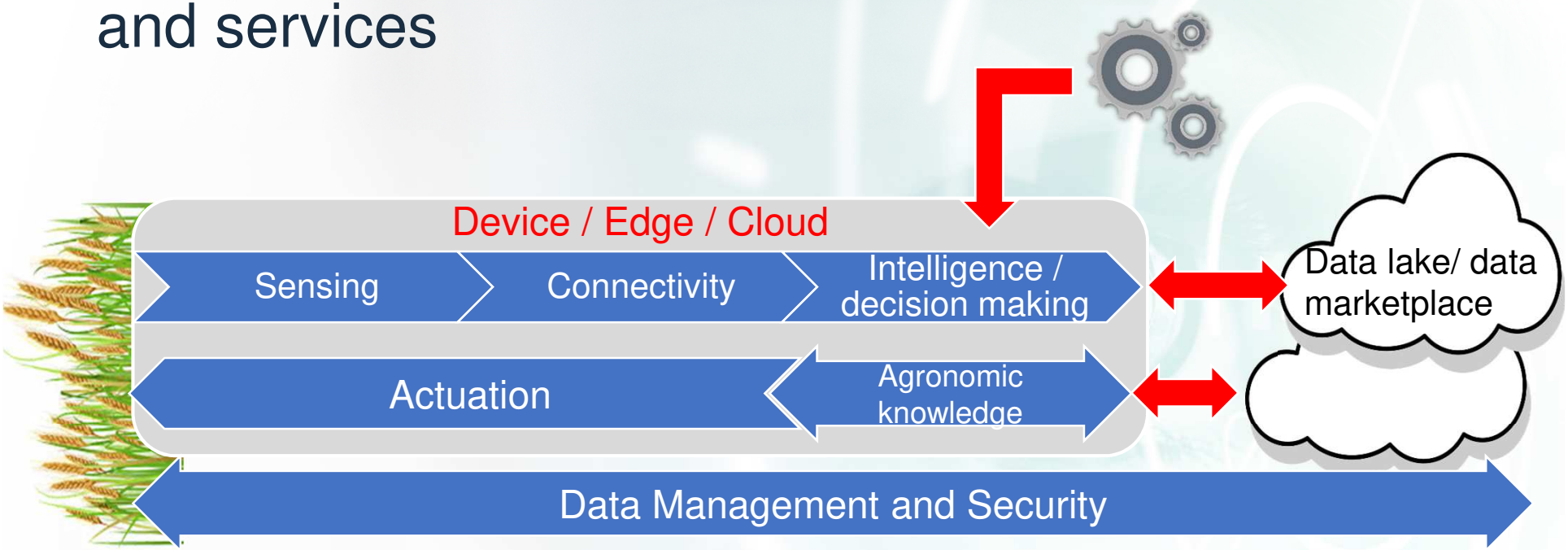
- Major publicly-funded EU projects
- EU “smart and sustainable agriculture” declaration: https://ec.europa.eu/eip/agriculture/en/news/eu-agriculture-smart-and-sustainable-digital
- Smart specialisation strategies in EU regions
- Farming and agrifood in the digital agendas of MS
- Digital Innovation Hubs – specialization in agrifood/farming

Where are we going?

Trend/need	Future use case scenario	Progress needed
Progressive automation of farm labour	UC#1: Cooperative autonomous agriculture robots	• Autonomous decisions • AI at the edge
Next-gen precision farming: finer monitoring and granularity	UC#2: Massive and individual monitoring of individual plants and animals	• Ultra-low power IoT • Massive M2M • Low cost/device
Data-centric management & virtualization of food chain	UC#3: Digital “twin farm”	• Same as UC#2 • Interoperability
Reduction of footprint in environment and climate	UC#4: Data-driven climate agriculture	• Agronomic models integrated with IoT • Major think shift
Simplification and modernization of CAP	UC#5: Automated CAP management through ICT tools	• Integration remote sensing–ground data • Data certification & reliability

- Smart Networks and IoT. Common topics for research and innovation in Horizon Europe
  https://aioti.eu/wp-content/uploads/2019/09/5G-IA-AIOTI-Common-Topics-190930-Web.pdf
- IoT and digital technologies for monitoring of the new CAP
  https://aioti.eu/wp-content/uploads/2019/05/AIOTI-CAP-controls-and-ICT-technologies-May-2019.pdf

Progressive integration of technologies and services



More **integrated platforms**
More **interoperability**
More **data-centric**

Thanks

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