INTERNET OF FOOD & FARM

Smart resource management across farming systems: potential of IOT in protecting soil, water and animal welfare while enhancing products quality and traceability

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MAIN FEATURES AND AMBITIONS

- Large scale **PILOT** project
- To foster a **symbiotic ecosystem** of **technology** providers, players from the **agri-food sector**, promoters of innovative/disruptive **business models**
- To accelerate the **adoption and maturation of IoT technologies** in the agri-food sector to guarantee safe and adequate food
- To pave the way towards **data-drive farming**, capable of providing good and sustainable yields

19 USE-CASES (not case-study!) already active

Arable crops, fruit and vegetables production, animal husbandry and welfare, logistics, traceability and certification systems

…… beyond IOT in farming

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IOT and use of natural resources what's more, what's better?

1. improved precision farming: not only early detection or DSS but direct actuation

- Precision mechanical **weeding** via camera guided tools (no herbicides)
- **Water and nutrients** precise application through continuous sensing of soil conditions + automatic actuators (less inputs but precisely distributed, night/Sunday) on wheat, soybean, table grape and tomato
- Optimized **feeding patterns** through animal specific requirements knowledge and fulfillment for meat and milk production
- Diversified and site specific **plant protection** with specific meteo data sensing and infection risk calculation on grape, tomato

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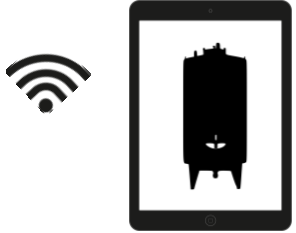
IOT and use of natural resources what's more, what's better?



1) 2. Beyond precision farming:

- Soil scanning + site specific irrigation, fertilization and weeding to identify and obtain **site specific best protein/ha** (in soybean)

- Wine shipping data-logger and fresh fruit smart box to monitor shipment conditions, regulate gas exchange and **reduce waste**

- Grazing monitoring and herdsman support to enhance pasture use, to enhance animal welfare, **improve land use and reduce GHG emission**

- Vat fermentation monitoring (in wine-making) to **reduce inputs** use and **optimize energy and water use**

- AR/VR to improve certification schemes and allow direct assessment of farming practices and impact by **consumers** (value!)

IOT AND ORGANIC: SUPPORT OR CLASH?

- IOT is a useful tool to farm with diversity as it allows to act differently on specific sites within the farm

- allows to use all the knowledge we have (need to have) on climate, soil and plant/animal needs to farm well best manage animals, land, environment and products

- It is a useful technology to do better what we already do: certification, animal welfare monitoring, soil in depth knowledge, adaptation to rapid changes (climate but also market)

- if it is based on farming systems/food chains need and not on technology needs

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IOT AND SMALL FARMS: SUPPORT OR CLASH?

Potentially it is a tool to better and more profitably farm also in small farms and remote areas if:

- the infrastructure is available: connectivity, affordable services etc.
- the tools and services are down-scaled to fit average EU farms
- there is a collective approach along the value-chain, within the community, in the geographic unit

If the driver is sustainable European farming and not new technology available

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FURTHER POTENTIALS FOR IOT IMPLEMENTATION IN EUROPEAN AGRICULTURE AND FOOD SYSTEMS WHERE RESEARCH IS NEEDED

- Sensors to detect specific molecules (pesticides, SO_2, pheromones..) but also other "situations" (i.e. insects presence, development etc.)
- Interoperability
- Low energy networks and tools
- Actuators for farming (i.e. for pesticides distribution, wild animals sensing and repelling) and for the food processing and handling
- To make full use of the data already available (RDP, health authorities, AOP, meteo..)

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WHAT NEXT?

Technology is running fast and ideas as well: call in June 2018 for new use-cases that can complement the running cases.
Pre-harvesting phase is open!

New areas
Un-covered geographic areas
Parts of the value-chain not involved yet
New ideas and technologies
Combination of mature cases

Stay tuned

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