Sustainable digital transformation of the agricultural value chain

Farming 4.0 - The necessity of change

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Farm Tech Funding Breakdown 2019

$4.7 bn Invested

+6,8% Investment growth

Rob Leclerc,

chief executive of AgFunder

„When it comes to AgTech, farmers have an information arbitrage advantage… they can play around with different technologies and can quickly separate the wheat from the chaff.”

940 Unique investors

$205m The biggest deal

How do farmers feel about that?

INTERNET OF FOOD & FARM

H2020 IoF2020 project

IoF2020

The project Internet of Food & Farm 2020 (IoF2020) explores the potential of IoT-technologies for the European food and farming industry

The goal is ambitious: to make precision farming a reality and to take a vital step towards a more sustainable food value chain

- 120 + partners
- 4 years (January 2017)
- 22 countries
- €35 m budget (€30 million co-funded under EU H2020 programme)

ARABLE

DAIRY

FRUITS

VEGETABLES

MEAT

33 Use Cases across 5 Trials

CEJA

European Large-Scale Pilots Programme

copa cogeca

european farmers european agri-cooperatives

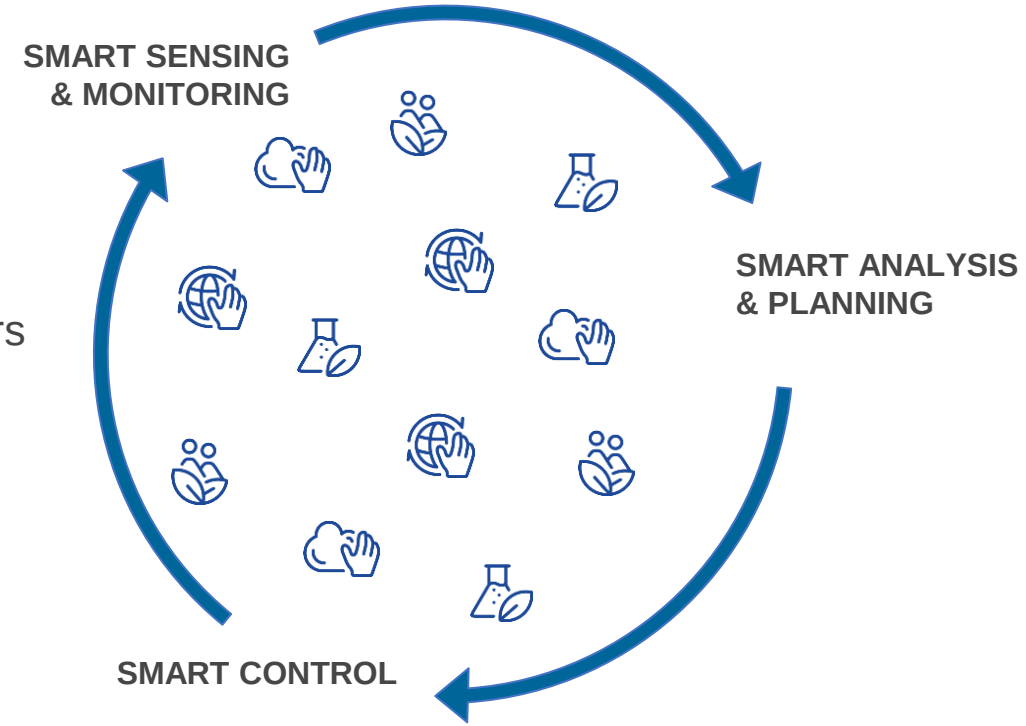
eit Food

SMART AGRI HUBS

IoF2020 > Trials & use cases

A MULTI-ACTOR APPROACH

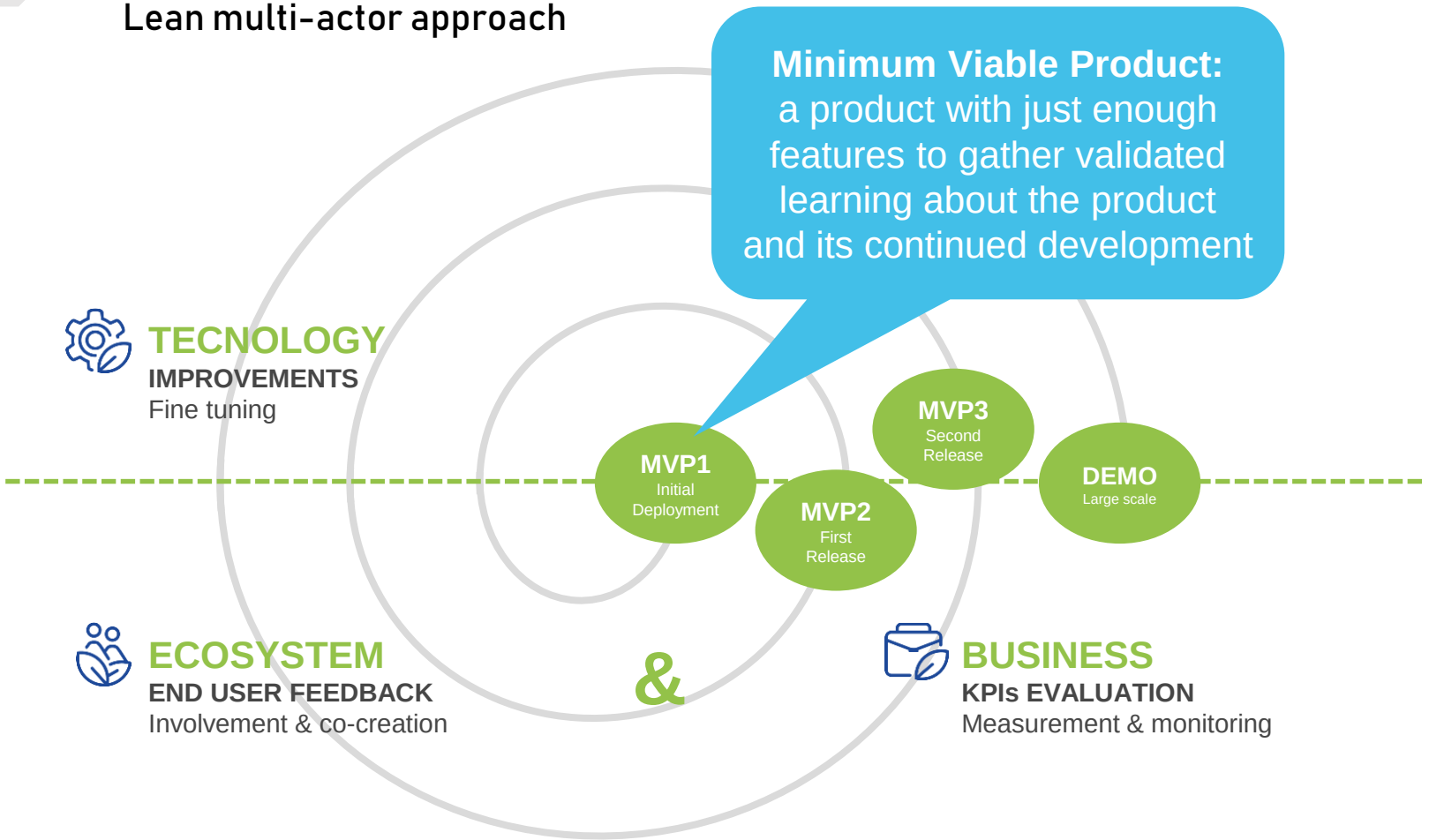
- End-users
- Infrastructure providers
- IoT integrators
- Researchers



INTERNET OF FOOD & FARM

IoF2020 > Trials & use cases

Lean multi-actor approach



IoF2020 User Acceptance Testing

LITERATURE REVIEW

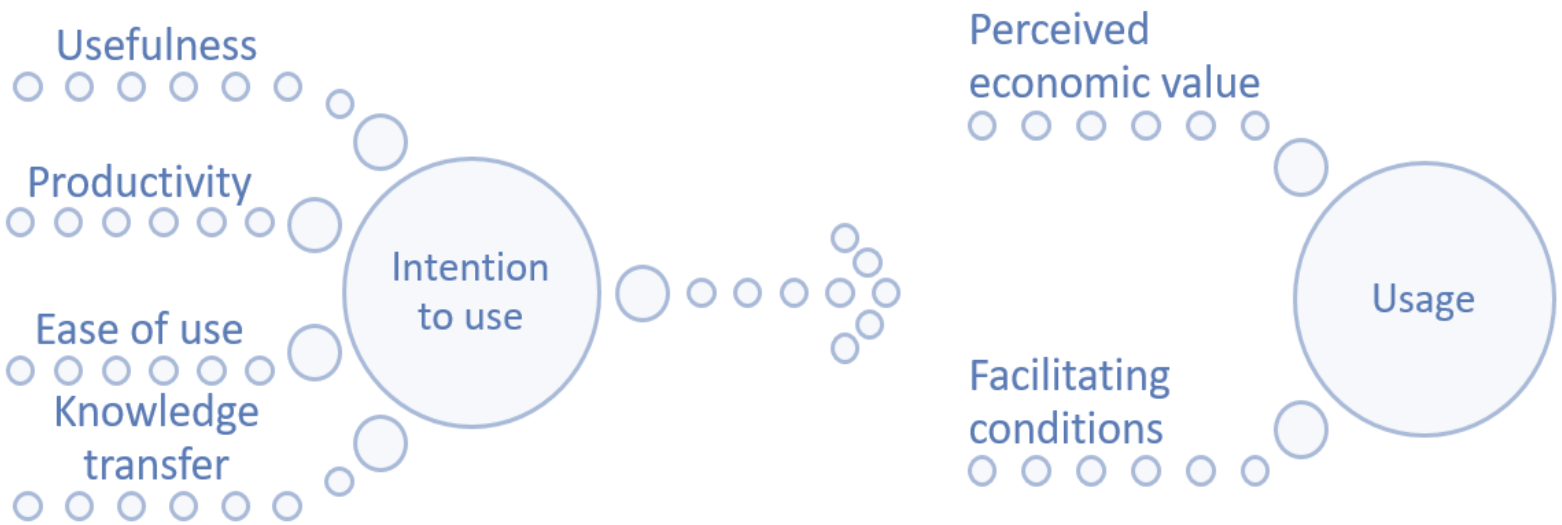
QUANTITATIVE ANALYSIS (QUESTIONNAIRE DATA)

QUALITATIVE DATA ANALYSIS (INTERVIEW DATA)

IoF2020

Trials & use cases

User Acceptance Testing - framework



ARABLE

Defining specific field management zones by developing and linking sensing and actuating devices with external data, mainly in potato.

Farmer's objective: to make variable rate maps in a more efficient and easier way compared to doing it manually.

"It's a **very easy to use** software that is doing what it's supposed to do."

"The application is just the tool to automate the process that can also be done manually. **It's not rocket science.** It's just making things easier."

… The solution is **not interoperable with other (existing) systems**, and is perceived as extra operation

"...the only thing that you need to take care of, is that the **application needs data**. And if the data is not there, then you can't use the solution ... One point that a lot of other users don't have - so that also could be a bit difficult."

DAIRY

The system is made up of a small rumen bolus, monitoring various physiological data (temperature, rumen and body activity, pH level), and a cloud-based server application to provide accurate information for daily operations.

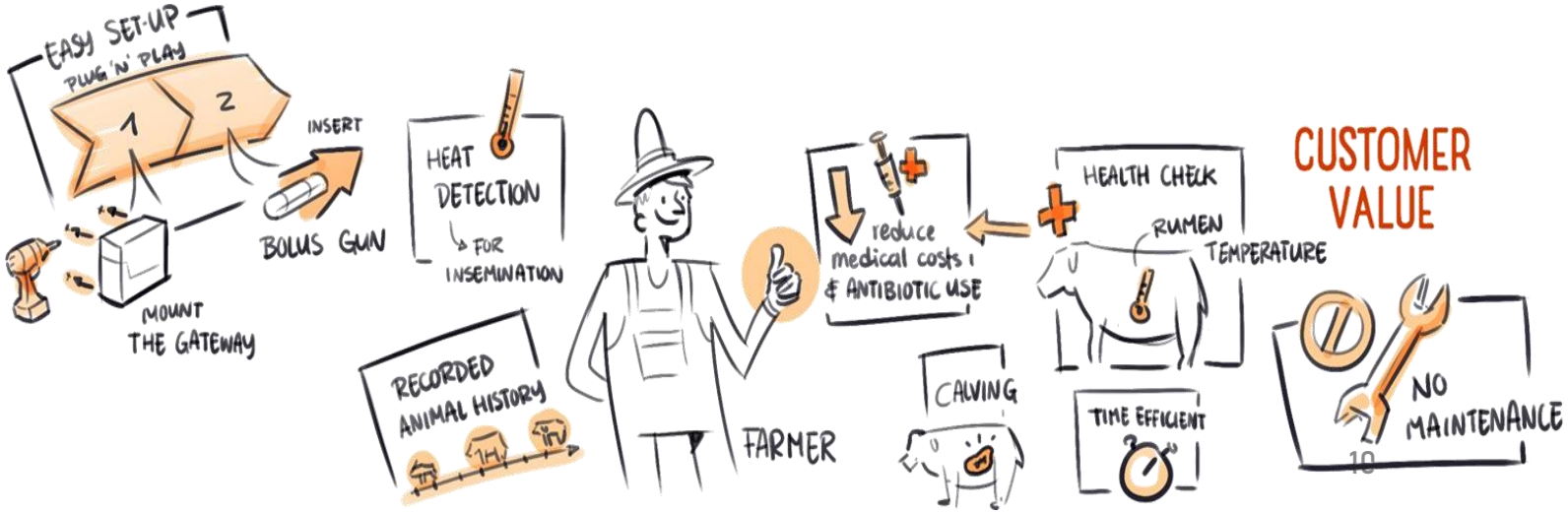
Farmer's objective:

- ✓ to use the heat detection of the solution to speed up the production period
- ✓ to detect animal health issues in an earlier stage than the physical systems do
- ✓ to optimize the calving period using the calving alerts of the solution.

New objective: selling the animals with the bolus and health history can increase the economic value of the animal.

"If the system is absolutely **reliable** and the safety **feeling** for his farm comes into play. This also provides value and better work-life balance and financial value."

"The only issue we have to solve is the water intake alert. We are working on it to refine and be able to send alerts only if the cow doesn't drink at all for days, and not only for a few hours."



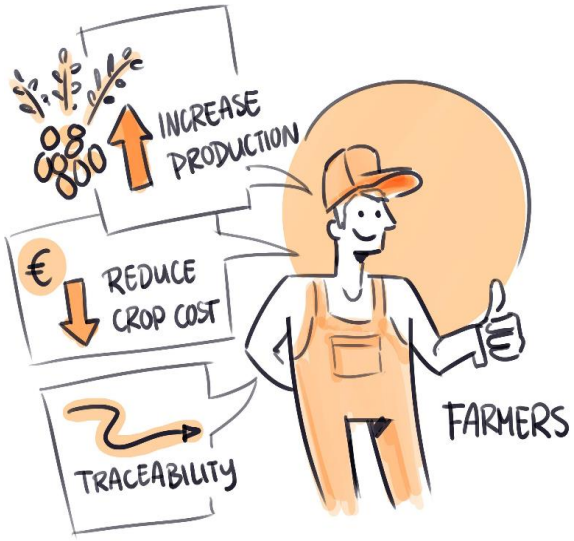
FRUITS

Realizing automated field control, product segmentation, processing and commercialisation of olives and olive oil.

Farmer's objective: to automate and optimize the irrigation and gain a better understanding of the watering needs of the olive chart. The other objective is to use the meteorological data for disease prediction.

"In cases of an **adequate farm size** and watering I think we should go towards this, it's a pity to not do it. You can have your money back, your investment in a year. I mean just **to save the diesel back and forth**."

"Farmers are really cautious because **advertisements** of technologies promise good results, but this is not always what the **farmers experience after implementation** of these technologies."



MEAT

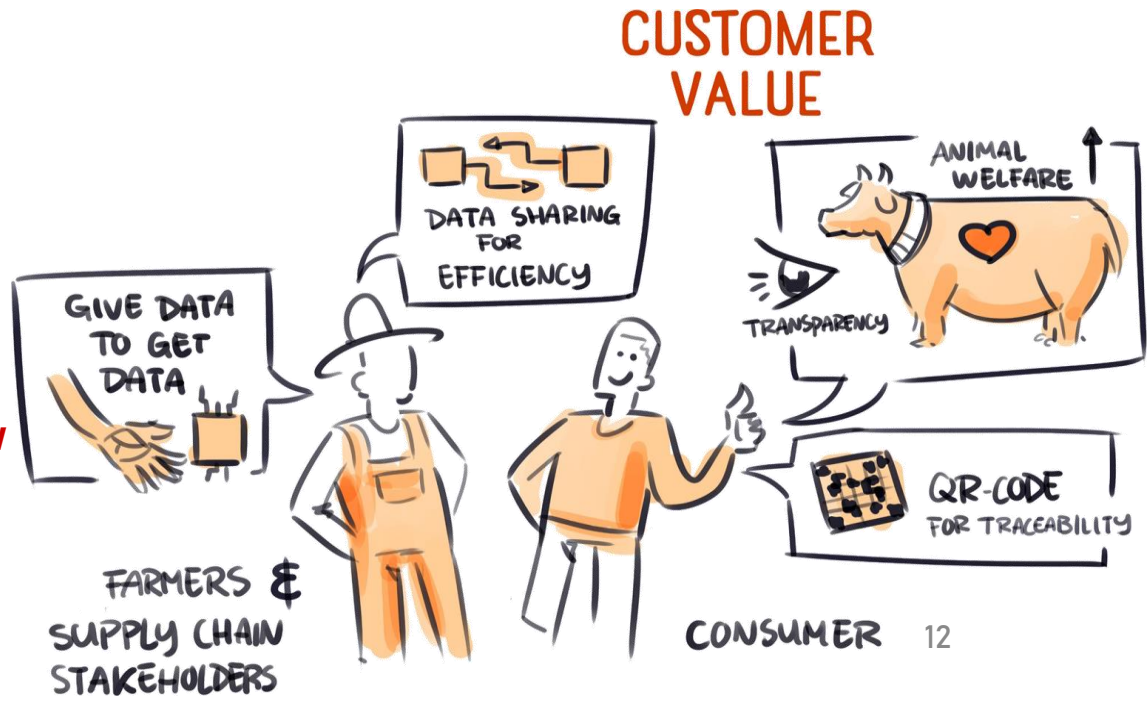
Creation of shared value for the beef supply chain from IoT and blockchain to increase production efficiency and product quality.

Farmer's objective: to increase the knowledge about what was happening on the farm by using the location of the animals and detect problems at an early stage.

"Looking for the animal, is possible with your phone. In the night and in the mornings if you are abroad if you are travelling or wherever you can control, it's not the same than being of course looking the animals that you can control where the animals are and improve your work. **From everywhere. You don't have to be in the land.**"

"Putting all the neck laces on the neck of the cows is **difficult if you don't have the structure in your farm**. We are lucky because well, we have put money in the farm and we have very good shoots and restrainer to hold the animal properly."

"The first time when we were offered to try the neck laces we were a little hesitant, we didn't want to try them because **we knew that in the other case they hadn't worked very well."**



Instead of conclusion

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1
Farmer-convenient

2
Usefulness + ease of use = adoption

3
Low-cost technology? Replicability_?

4
Age

5
Mentality
➢ Knowledge transfer

6
Facilitating issues

Instead of conclusion

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