IOF2020 DAIRY TRIAL EXPERIENCES

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Wageningen Livestock Research

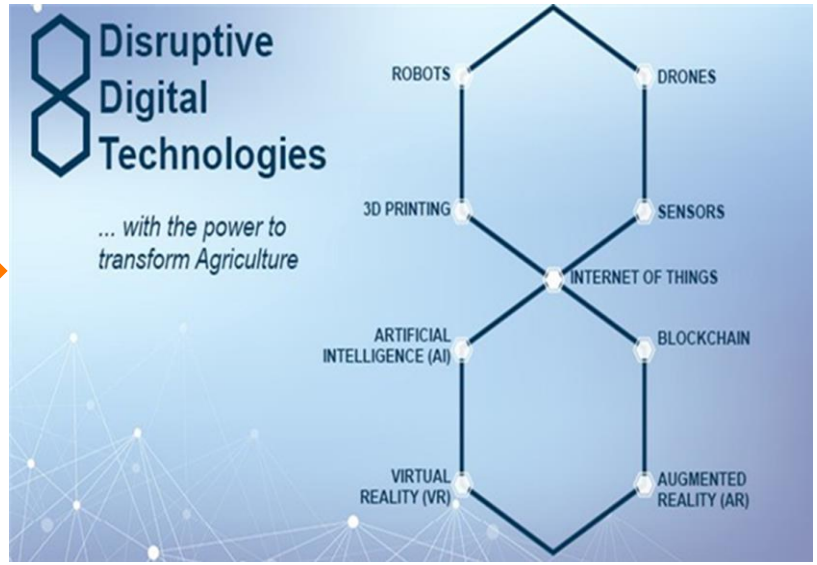
IoF2020 Solutions for Farmers: How IoT helps your Farming Activity? (LSP)

IoT week Aarhus: June 19th 2019

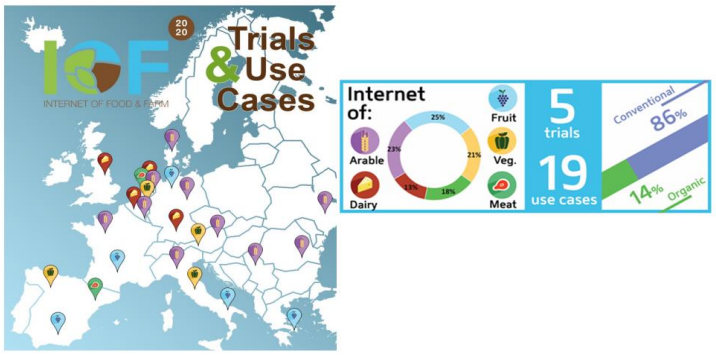
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731884

Short introduction of IoF20 Dairy Trial

Complex (inter)national food production chains



IoF2020 – Large Scale Pilot



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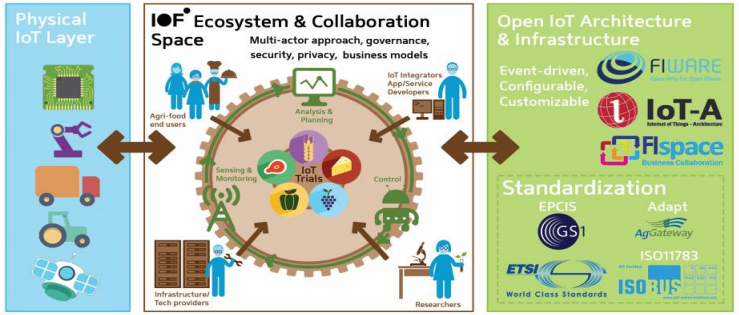
Overall concept for 4 year, 30M€ project



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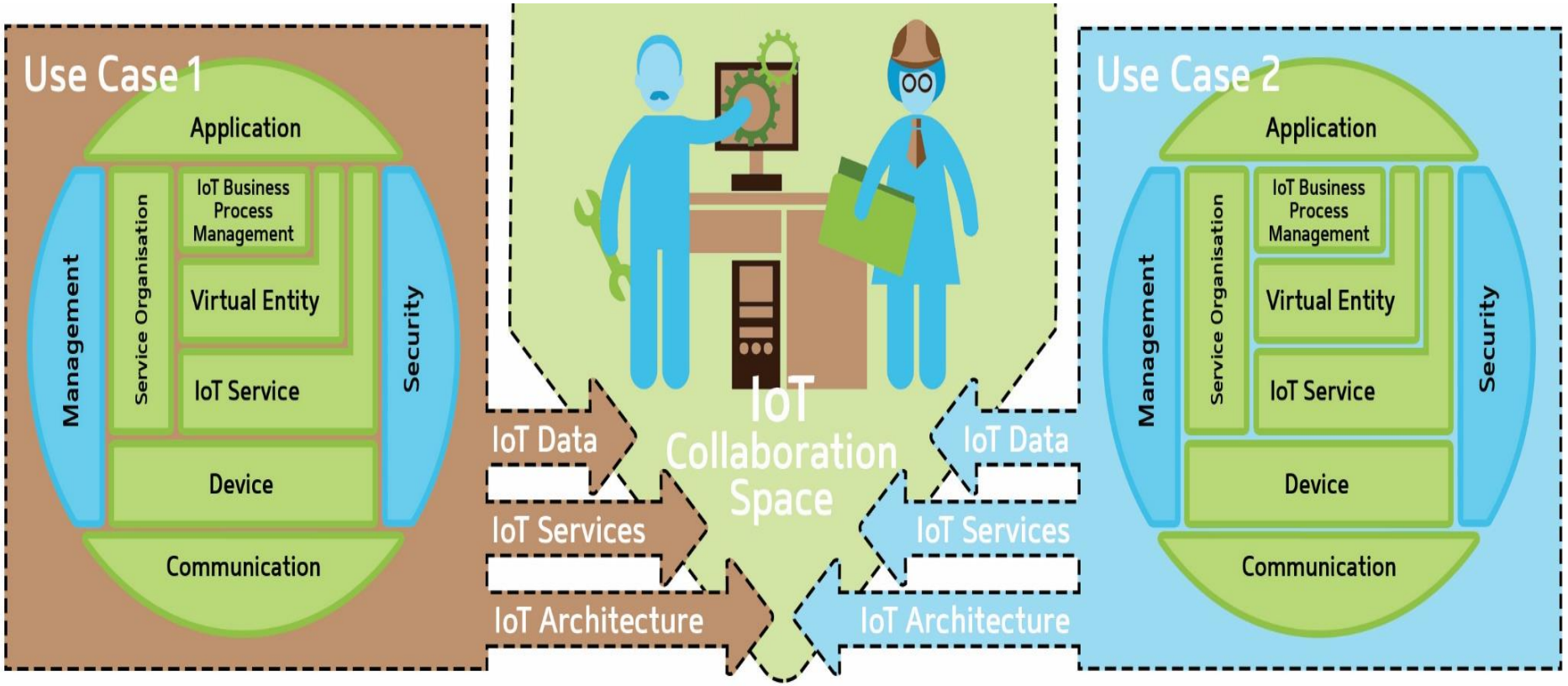
Expected SYNERGY between USE CASES



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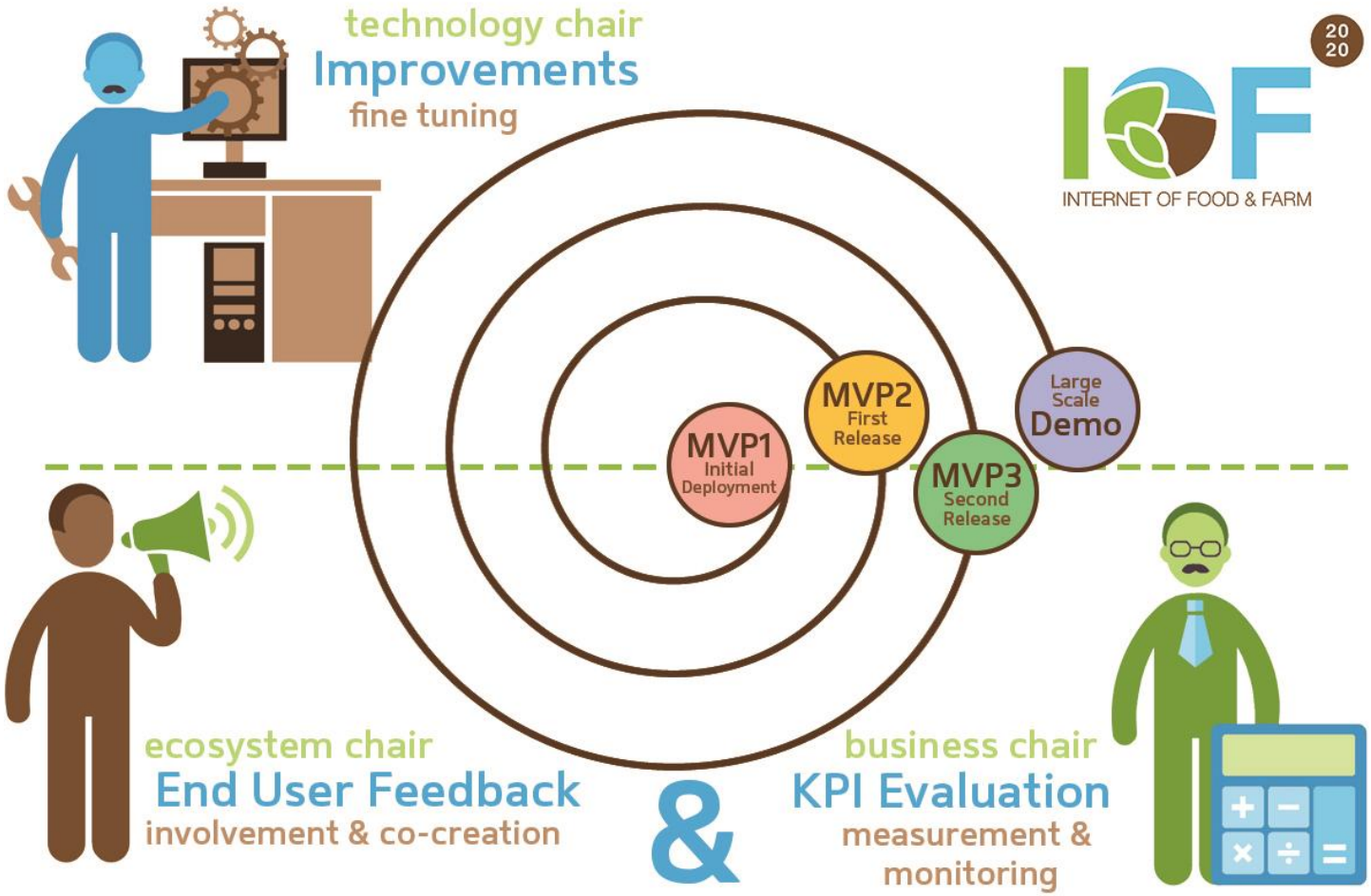
Overall methodology



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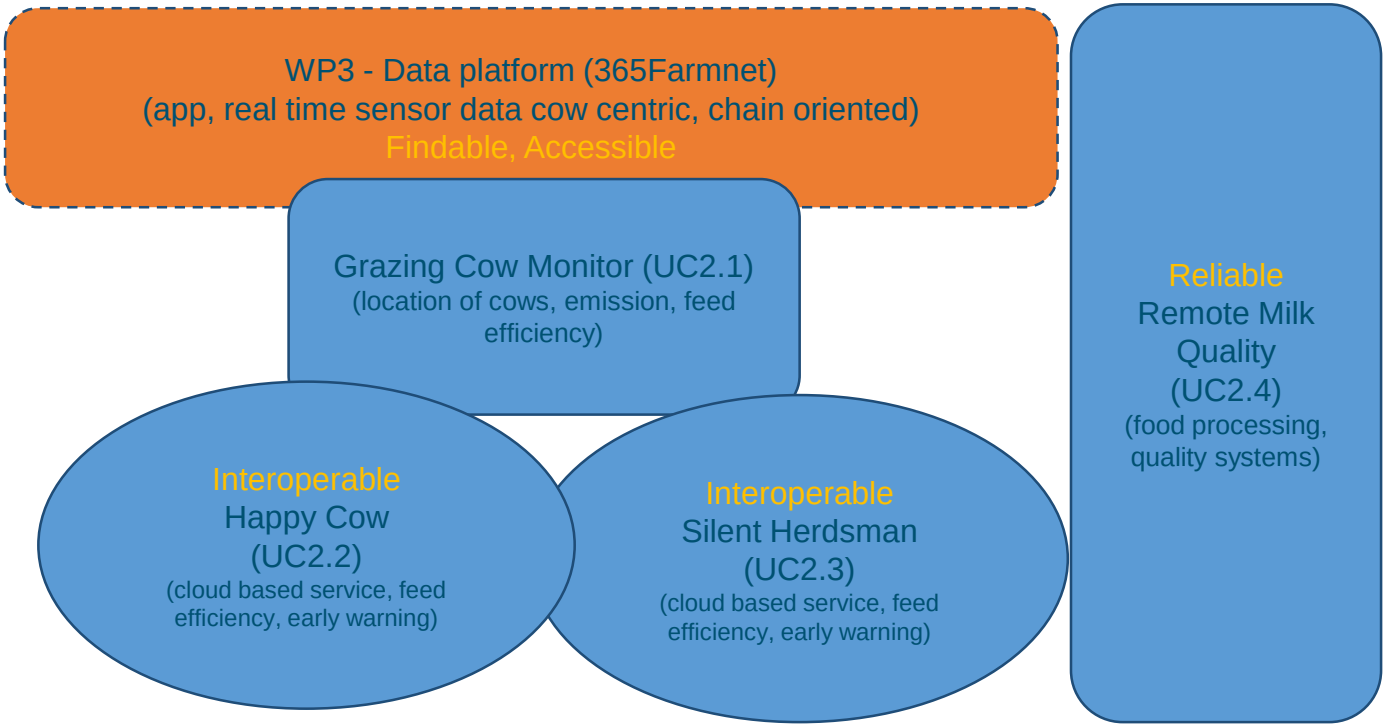
IoF20 Dairy Trial

- *The goal of the DAIRY trial is to implement, experience and demonstrate in some EU-countries the use of real-time sensor data from 'grass to glass' to create value in the dairy chain by applying the FAIR (Findable, Accessible, Interoperable, Reliable) principle. It will benefit health, welfare, environment and resource efficiency*



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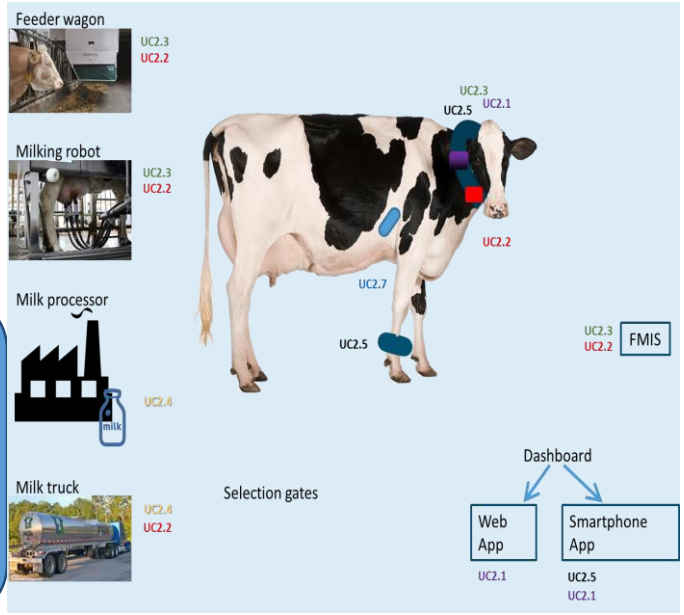
IoF20 Dairy Trial Status in 2019

- UC oriented
- Between MVP1 and MVP2
- Implemented on first farms
- In open call 3 use cases added



Reliable
Remote Milk Quality (UC2.4)
(food processing, quality systems)

Grazing Cow Monitor (UC2.1)
(location of cows in a free grazing environmenty)

Interoperable
Happy Cow (UC2.2)
(cloud based service, feed efficiency, early warning)

Interoperable
Silent Herdsman (UC2.3)
(cloud based service, feed efficiency, early warning)

Data platform (365Farmnet)
(app, real time sensor data cow centric, chain oriented)
Findable, Accessible

UC2.5: Lameness Detection through Machine Learning (Ireland, Waterford Institute of Technology

UC2.6: Precision Mineral Supplementation (Denmark, Organe Institute ApS)

UC2.7: Moonsyst Smart Monitoring system for dairy and beef cattle (Hungary, Moonsyst)

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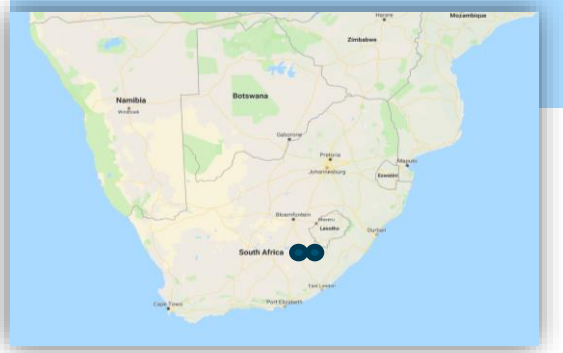
Deployment



- UC2.1
- UC2.2
- UC2.3
- UC2.4
- UC2.5
- UC2.6
- UC2.7

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Key performance indicators:

- Economic
  - Productivity increase
  - Efficiency improvement
  - Cost reduction
  - Quality improvements
- Environmental
  - Lower input
  - Lower impact
- Social
  - Ease of work
  - Public health

Dimension	Categories	Indicators	UC
Economic	Productivity increase	Yield increase per cow (milk – meat - offspring)	2.2, 2.3, 2.5, 2.7
		Improved animal health	2.2, 2.3, 2.5, 2.7
		Reduction of calving interval	2.2, 2.5, 2.7
		Reduced production assets	
		Higher productivity / employee	
		Higher return on investment	
		Calibration sets provided & used for remote instrument monitoring	2.4
	Efficiency improvement	Increased production efficiency	2.4
	Cost reduction	Revenue increase	2.1, 2.3
		Reduced work time	2.2, 2.7
		Reduction of culling due to lameness issues	2.5
	Quality Improvements	Improved tractability	
		Improved precision of measurement values	2.4
		Accuracy if all cows are inside or outside the barn	2.1
Environmental	Lower input	Increased animal health & welfare	2.1, 2.2, 2.3, 2.5
		Reduced assets production	
		Improved processing/resource use	2.4
		Less waste/not qualified products	2.4
	Lower impact	Lower emissions & Leaching	
Social	Ease of work	Reduction of worktime	2.1, 2.2, 2.3, 2.7
		Improved precision of values	2.3, 2.4
		Disseminate to dairy farmers directly	
	Public health	Increase quality food, food safety and security against terrorism	2.4
		Less use of antibiotics	2.7

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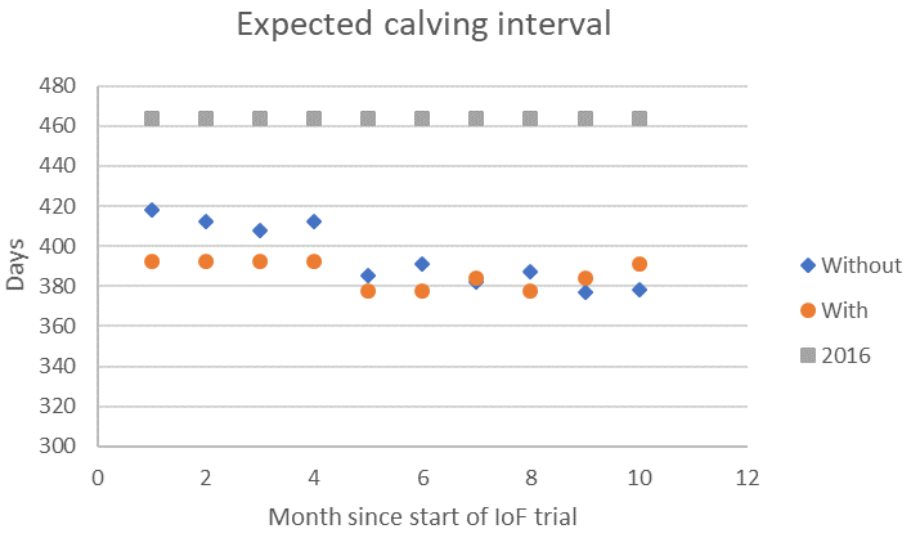
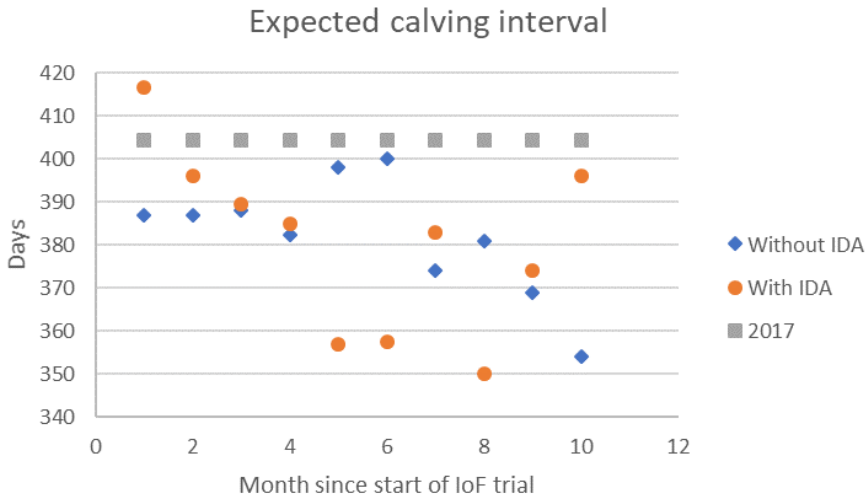
Use Case 2.2. Happy Cow Impact

FARM 1: Netherlands



FARM 2: Belgium



Estrus has shown improvement in Farm 1, while results are inconclusive on Farm 2.

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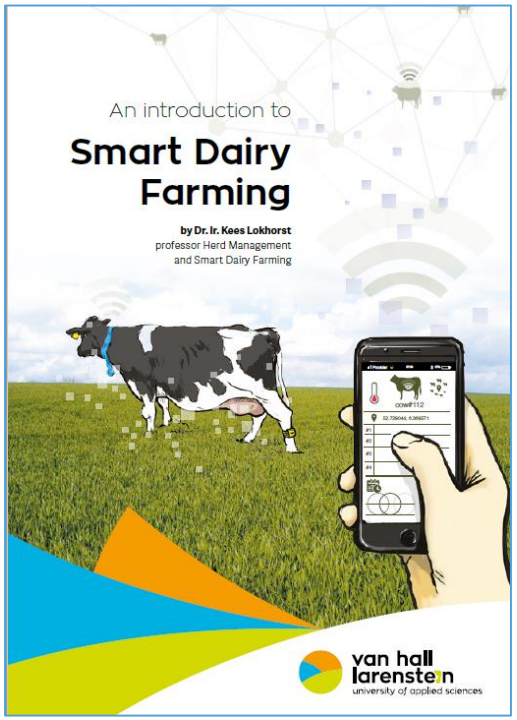
Discussion points

- IoT implementation in products and services is:
    1. Easy
    2. Complicated
    3. (hardly) Impossible

- Implementation of IoT-products and services in practice and show benefits is:
    1. Easy
    2. Complicated
    3. (hardly) Impossible

- Building an IoT community to share knowledge and experiences is:
    1. Easy
    2. Complicated
    3. (hardly) Impossible

Author of ..



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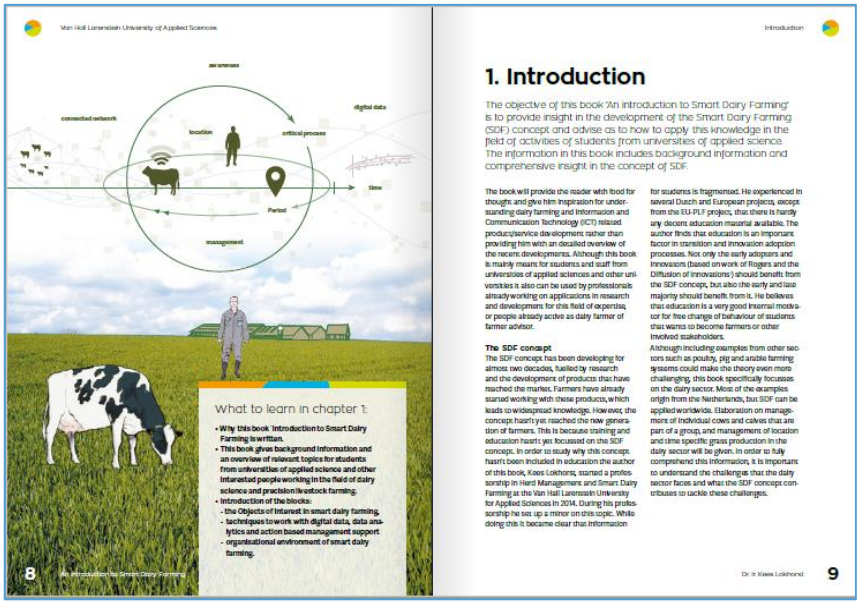

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