

# Improve poultry welfare and increase their meat quality with the Internet of Things

Deitze Otaduy | Brussels, 6th December 2018



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Research Alliance

## INTERNET OF FOOD AND FARM 2020

- **IoF2020** – technology integration
- Open **collaborative** environment + **ecosystem** development
- **30 M€** funded by the H2020 Framework Programme of the EU.
- **4 years - 2016 a 2020**
- 5 trials' – 3 or 4 use-cases for trial



### ARABLE

Add IoT technology to existing networks and databases to enable precision farming



### FRUITS

Use data to increase fruit quality, yield and product traceability from farm to shelf



### VEGETABLES

Combine sensor data to execute cultivation patterns automatically



### MEAT

Optimize animal health, production chain transparency and traceability



### DAIRY

Use real-time sensor and location data to create added value in the dairy chain

## Meat Trial Use Cases

### UC 1 Pig Farm management

**Improve animal's welfare** by reducing boar taint, health problems and productivity, combining information of the whole chain, both at group and individual level

### UC 2 Poultry Chain Management

**Improve poultry welfare and increase their meat quality**, from the farm to the slaughterhouse.

### UC 3 Meat transparency and traceability

**Improve transparency and traceability** in the pig chain, developing an ICT solution for collecting and sharing meat quality and traceability data.





## FARM LEVEL

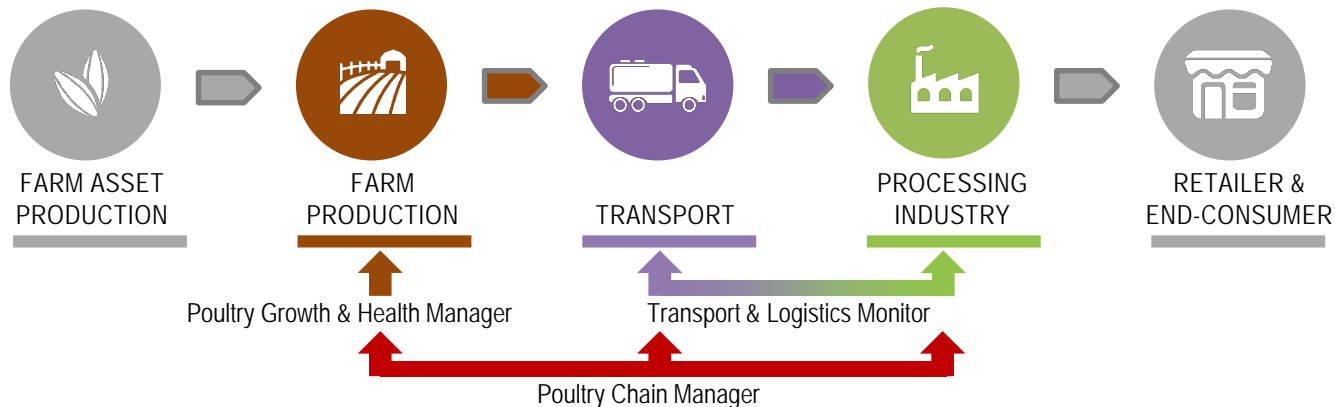
Monitor and optimize growing process to achieve a uniform and precisely measured slaughter weight

## LOGISTICS

Monitor and optimize broiler handling and transport to **reduce impacts** on the poultry and **increase comfort levels**

## PROCESSING PLANT

Optimize slaughtering and **improve profitability** and **product-market fit**, with information from all stages





### Poultry Growth Manager

Combines data of scales, feed & water consumption, and environmental sensors to monitor poultry growth



### Animal Welfare Monitoring System

observes and predict climate conditions to ensure animal welfare

## FARM LEVEL

### Poultry Growth & Health Manager

Precision system to improve feed conversion & animal health



Environmental sensor networks



Scales: animals weighting



Scales: silos weighting

- ✓ Temperature
- ✓ Humidity
- ✓ Luminosity
- ✓ CO2
- ✓ Ammonia





### Manual Loading Monitor

Smart bands to measure physical impact on chicken when loaded on a truck to prevent injuries



### Environmental Monitoring

Measures the temperature and other criteria during transport to increase animal welfare

## LOGISTICS

### Transport & Logistics Monitor

Advanced tracking system for poultry welfare on transport



Smart bands for load monitoring





### Production Mgmt DSS

Considers all the data gathered through the whole poultry chain and extract their relation regarding to animal welfare and impact



### Data Visualization

Presents a graphical interface

## POULTRY CHAIN MANAGER

Services that correlate data from different stages showing relevant influences among the production chain



**3 poultry farms**

About **28,000 - 35,000 poultries** each

**2 trucks** with **5 sensor** each monitoring different areas of the truck

**5 people** for poultry loading

## Improve poultry welfare and increase their meat quality with the IoT

### THE IMPACT

- Death reduction in production 10%
- Death reduction in transport 15%
- Improve animal welfare
  - improve physical conditions 15%
  - less treatments
- Decrease antibiotics use 15%
- Improvement of flock's average weight and uniformity 10%
- Increase of class A birds 20%
- Less waste of feed: 10%





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