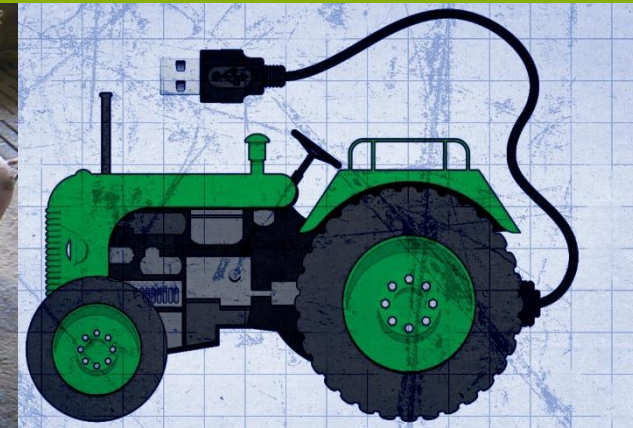
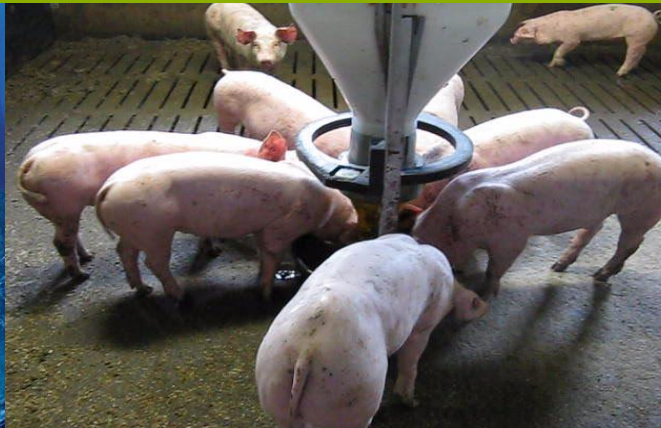


# *Bringing digitisation in Farming to practice*





# Where/Who are we?



Belgium  
Ghent  
ILVO  
with  
*630 employees*  
*225 researchers*

# ILVO

Institute for Agricultural  
and Fisheries Research

# ILVO Units

Plant Sciences

Social Sciences



Animal Sciences

Technology and  
Food Science

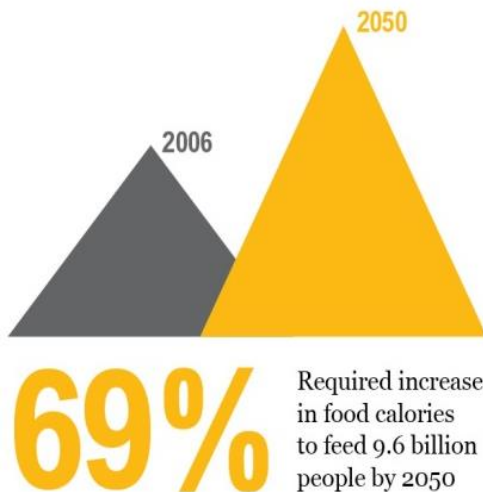
# Yes, there is a huge challenge!

## THE GREAT BALANCING ACT

The world must achieve a “great balancing act” in order to sustainably feed 9.6 billion people by 2050.

Three needs must be met at the same time.

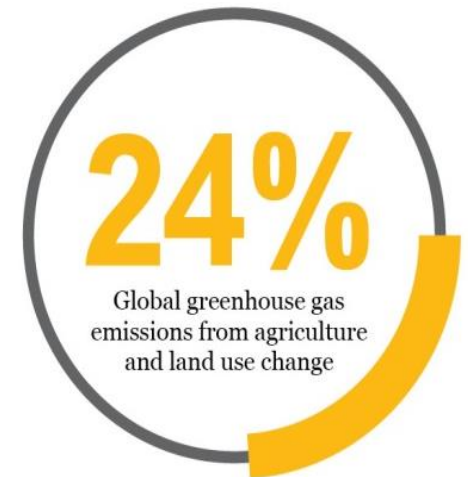
### CLOSING THE FOOD GAP



### SUPPORTING ECONOMIC DEVELOPMENT



### REDUCING ENVIRONMENTAL IMPACT



**Precision Farming can do this**

Does the future look bright?



# Top Ten Favorite Technology

**Robot milking machines**  
save farmers time and give cows the freedom to be milked when they want

19%



**Robot livestock feeders**  
save farms money and consistently feed a herd

2%



**Cow heat detection devices**  
increase pregnancy rates

5%



**Electronic ear tags**  
identify domestic livestock

2%



2%



**Aerial drones**  
used to spot weeds, calculate fertilizer needs and scare pigeons

2%

5%

**Combine harvester yield meters**  
monitor, display and record grain yield

**Farm management software**  
is used to manage all aspects of a farm



**Smartphones**  
used by farmers to communicate, check soil depth, register animals and more

13%

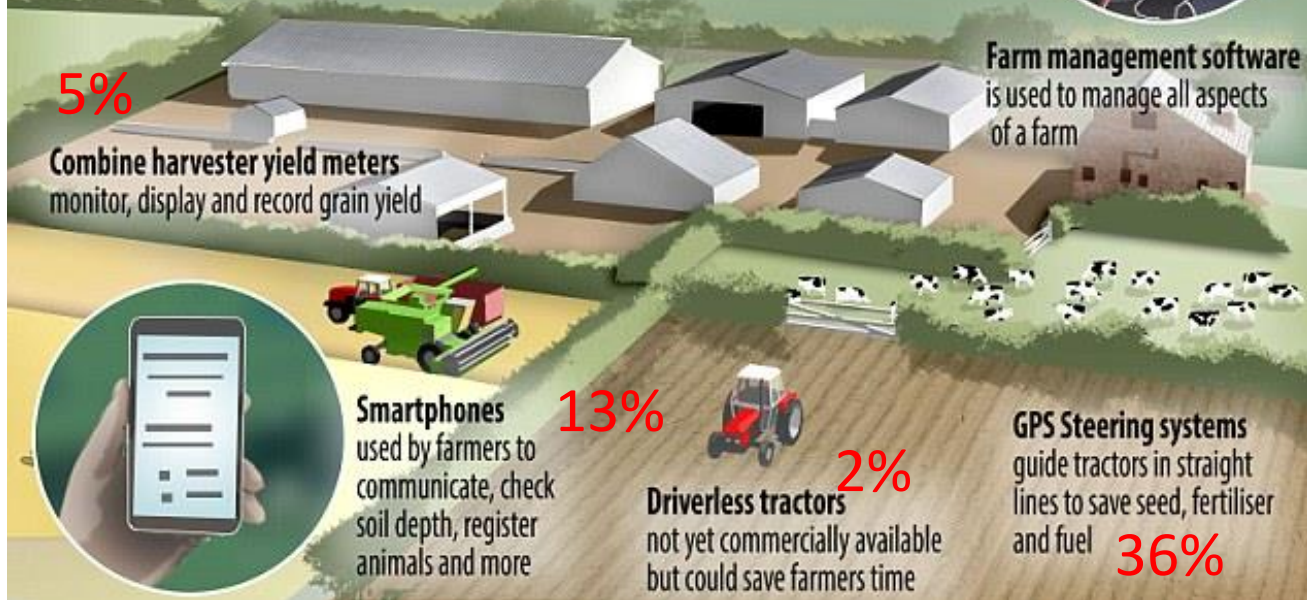
**Driverless tractors**  
not yet commercially available but could save farmers time

2%



**GPS Steering systems**  
guide tractors in straight lines to save seed, fertiliser and fuel

36%



# Digital Farming

- Robotics, automatisatie en GNSS-technology
- Connectivity (Internet of Things)
- Big data analytics



⇒ Explosion of data

⇒ Data revolution in the Agrifood sector

# Combined with

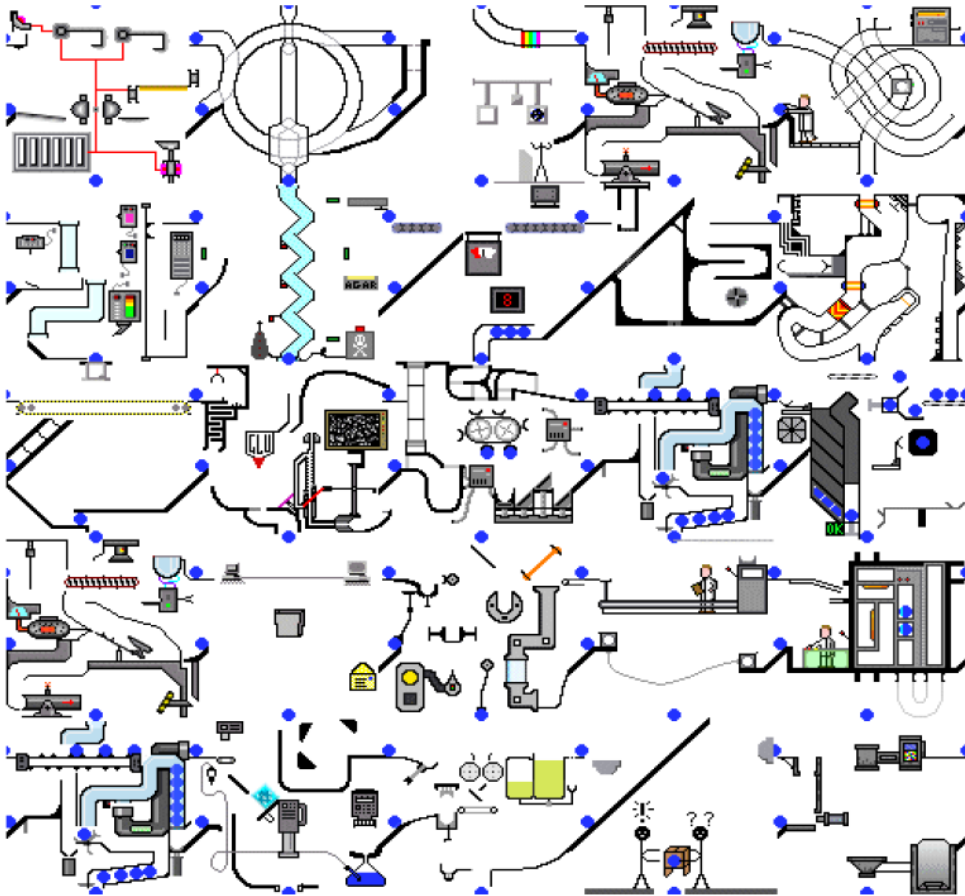
- Apps stores & cloud services (ICT-trends):
  - The internet is everywhere



- Social media: direct and immediate contact between stakeholders



# In future



- Data stream>
- Money & Materials

Need for a new internet: Internet of Things

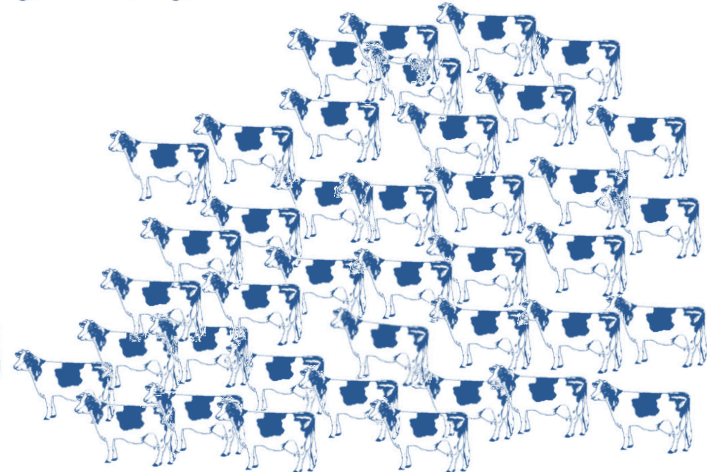
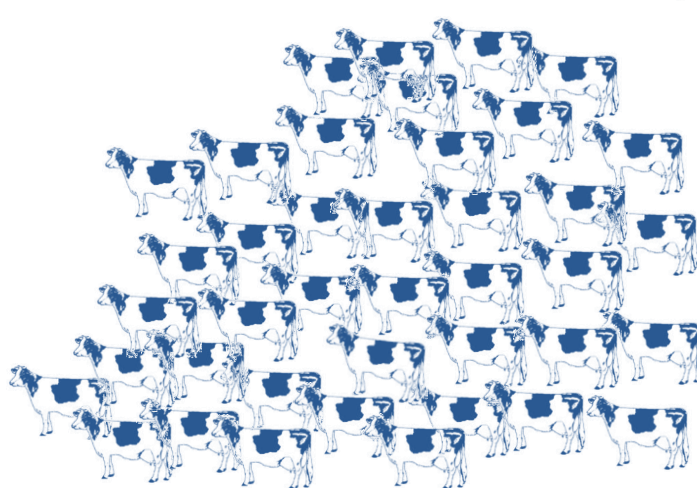
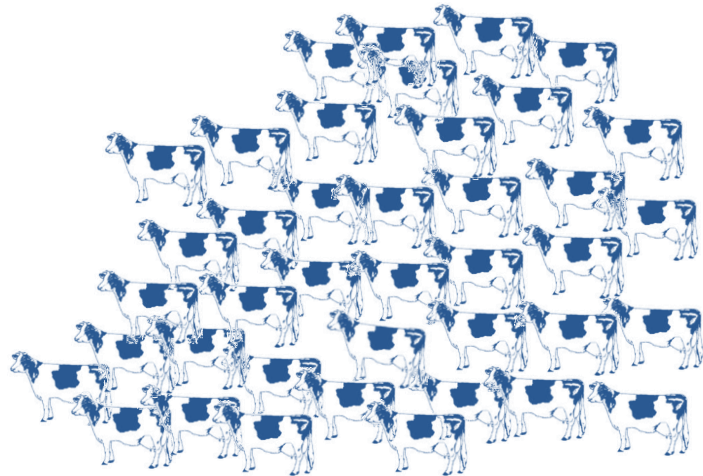
So ....

Precision Farming as  
it is will solve  
everything?

NO...

Unfortunately not

# Growing farms: number of animals per stockman







**Management by  
exception**

# Limited Success of PF

Too hard

Available technology is unknown  
Technology is too complex to use  
Not enough time

Too expensive

Technology:  
no value for  
money

Too much

Plenty of data,  
How to use it?

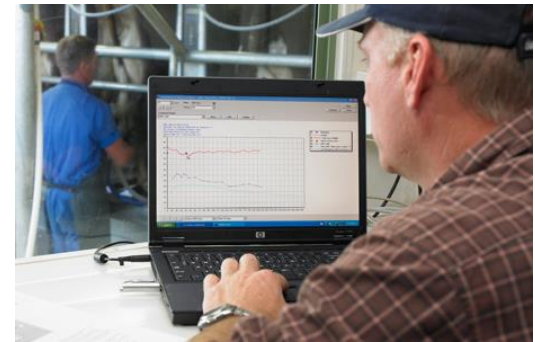
- Participatory processes
- Knowledge platforms
- Technology as a service

- False alarms
- Unused data
- Benchmarking

- Show cost-benefit
- Lower prices

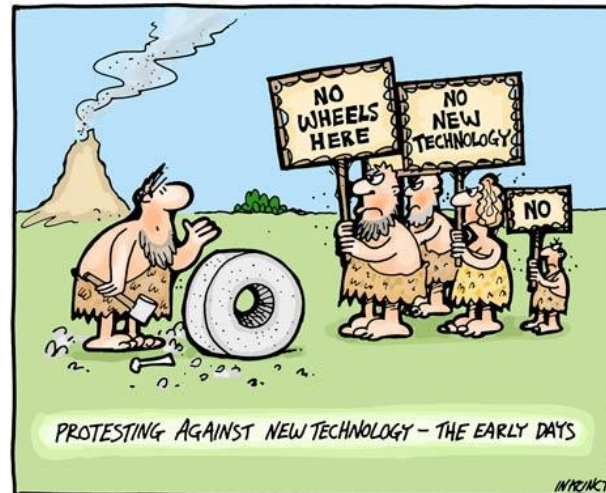
# Current situation

- “A lot of good sensors but little good information for the farmers”
- Visual interpretation and decision making still done by the farmer.
- Individual and historic information on animals and land that is not integrated.





Try to identify the main reasons behind the current lack of adoption, and identifying the key barriers to the implementation of Precision Farming on European farms.

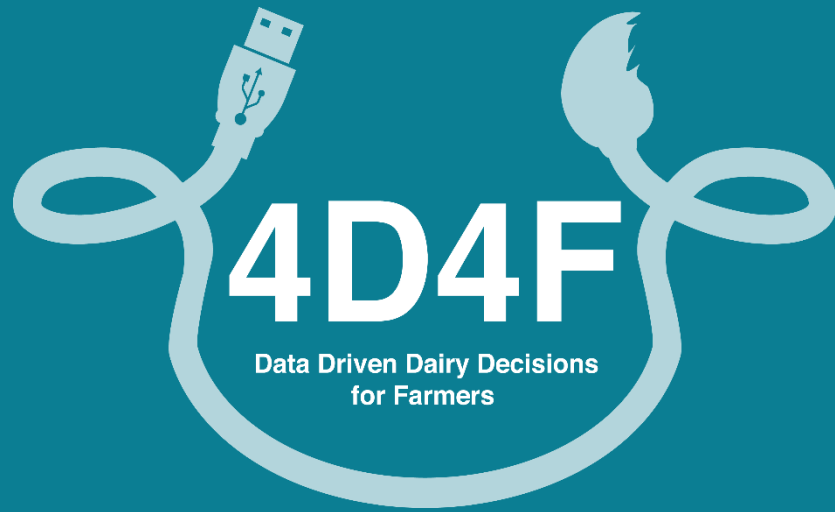




- Utility of many PF applications not fully **demonstrated**
- Missing cost/benefit analysis
- Lack of **user-relevant** research at both basic and applied levels
- Lack of resources that are necessary for **business-driven** innovation to enable a market uptake.
- PF needs collaboration of stakeholders in order to achieve widespread EU farm adoption: **Collaborative technology transfer initiative**
- Data compatibility and handling are important issues
- Technology development will stimulate interactive innovation

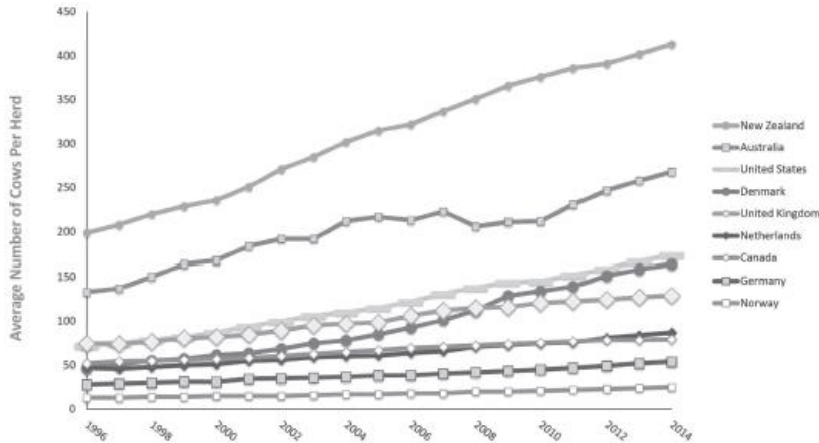
- Active **farmers** involvement in development of PF tools
  - Solutions focused on real farming problems and challenges for the majority of farmers
  - Require testing in different real farm situations
- **Farmers** themselves must drive the demonstration of appropriate technology
- Training in Precision Farming technologies for **farmers**
- **Collaborative technology transfer initiative** is required focus on farmers' needs
  - **Farmers**
  - Researchers
  - Advisers
  - Technology providers

- Let us bring people from both science and practice together to create useful, practical outputs.
- Let us collect existing scientific knowledge and best practices which are close to being put into practice, but not yet sufficiently ready for farmers and foresters to implement;
- Let us translate this knowledge into easily understandable end-user material
- Let us involve all relevant stakeholders?
- => HOW TO DO THIS?



This project has received funding from the European Union's Horizon 2020 research and innovation programme (ISIB-2015-1 programme ) under grant agreement N° 696367

# THEMATIC NETWORK DATA DRIVEN DAIRY DECISIONS FOR FARMERS ('4D4F')



Average number of cows per farm ↑

Milk yield ?

Milk quality ?

In heat ?

Fever ?

Pregnant ?

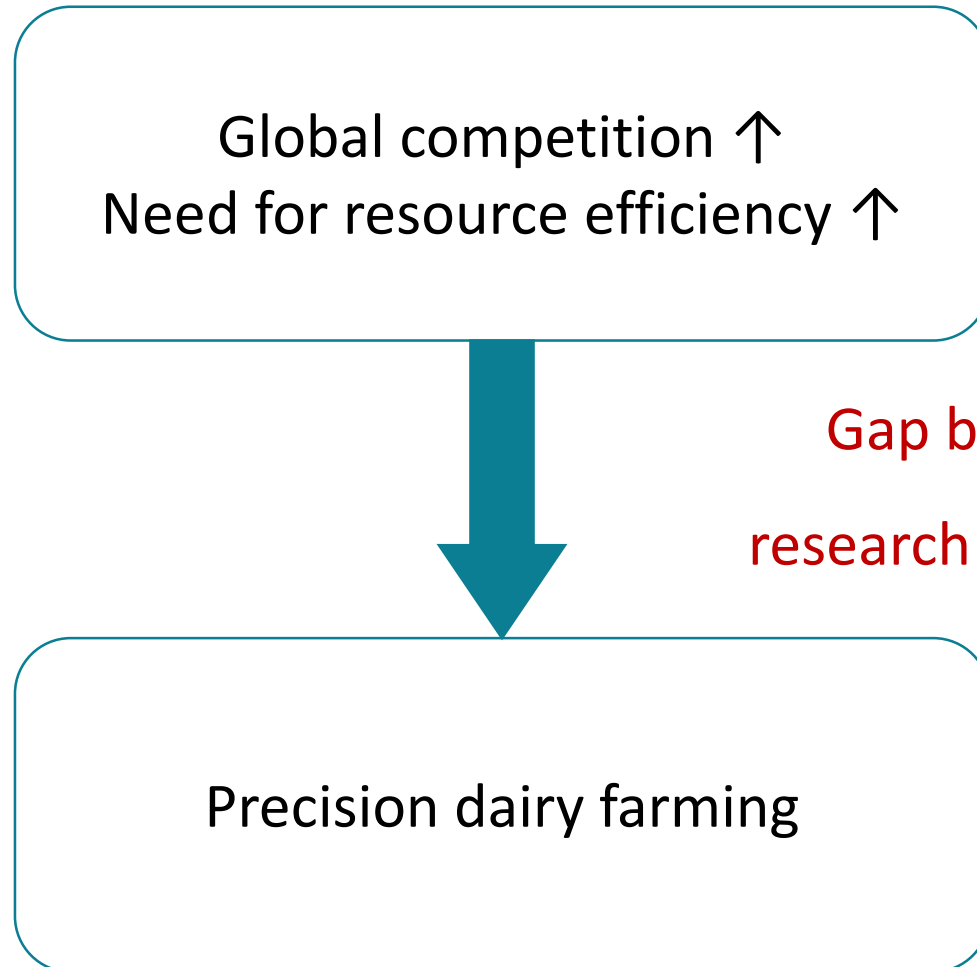
Condition ?



Feed intake?



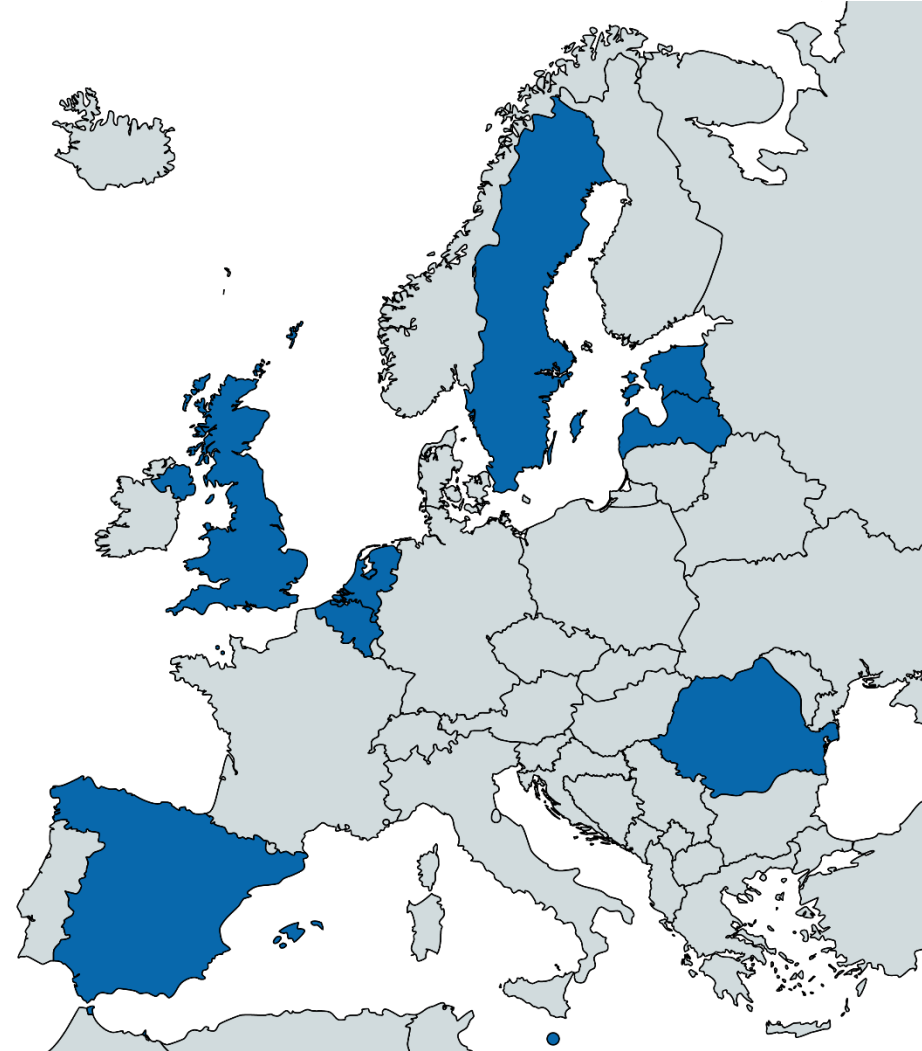
# Challenges for European dairy industry



Gap between  
research & practice

# 4D4F Consortium

- 16 different members
- From academia, industry, farming and knowledge exchange organizations
- Collaborative technology transfer initiative



# Farmer Challenges

- Profitability
- Animal Welfare
- Consumer demands
- Environmental Pressure
- Labour
  - Quality
  - Cost
- Economic Competition
- Water
- Legislation
- Succession





## Farming Partners



**INNOVATION** *for* **AGRICULTURE**

**ZLTO**



THE ROYAL SWEDISH ACADEMY OF AGRICULTURE AND FORESTRY



Wim Govaerts & Co

## Academic Partners



**KU LEUVEN**



**IRTA**

RESEARCH & TECHNOLOGY  
FOOD & AGRICULTURE



**ILVO**

Institute for Agricultural  
and Fisheries Research



**van hall  
larenstein**

university of applied sciences



**Eesti Maaülikool**

Estonian University of Life Sciences

[www.emu.ee](http://www.emu.ee)

## Partners



Knowledge  
innovation  
market

## Focus of 4D4F

Developing a physical and virtual **Community of Practice (CoP)** to support and improve **data driven** decisions on dairy farms



# Community of practice (CoP)

## For whom?

Dairy farmers

Technology suppliers

Agricultural Advisory

Service Providers

Veterinarians

Researchers

Rural Stakeholders

Others



Exchange ideas & share experiences  
with farmers and experts

Source of up-to-date information

Free access to learning tools (videos,  
guides, decision tools, ...)

Participate in (virtual) work-  
shops across Europe

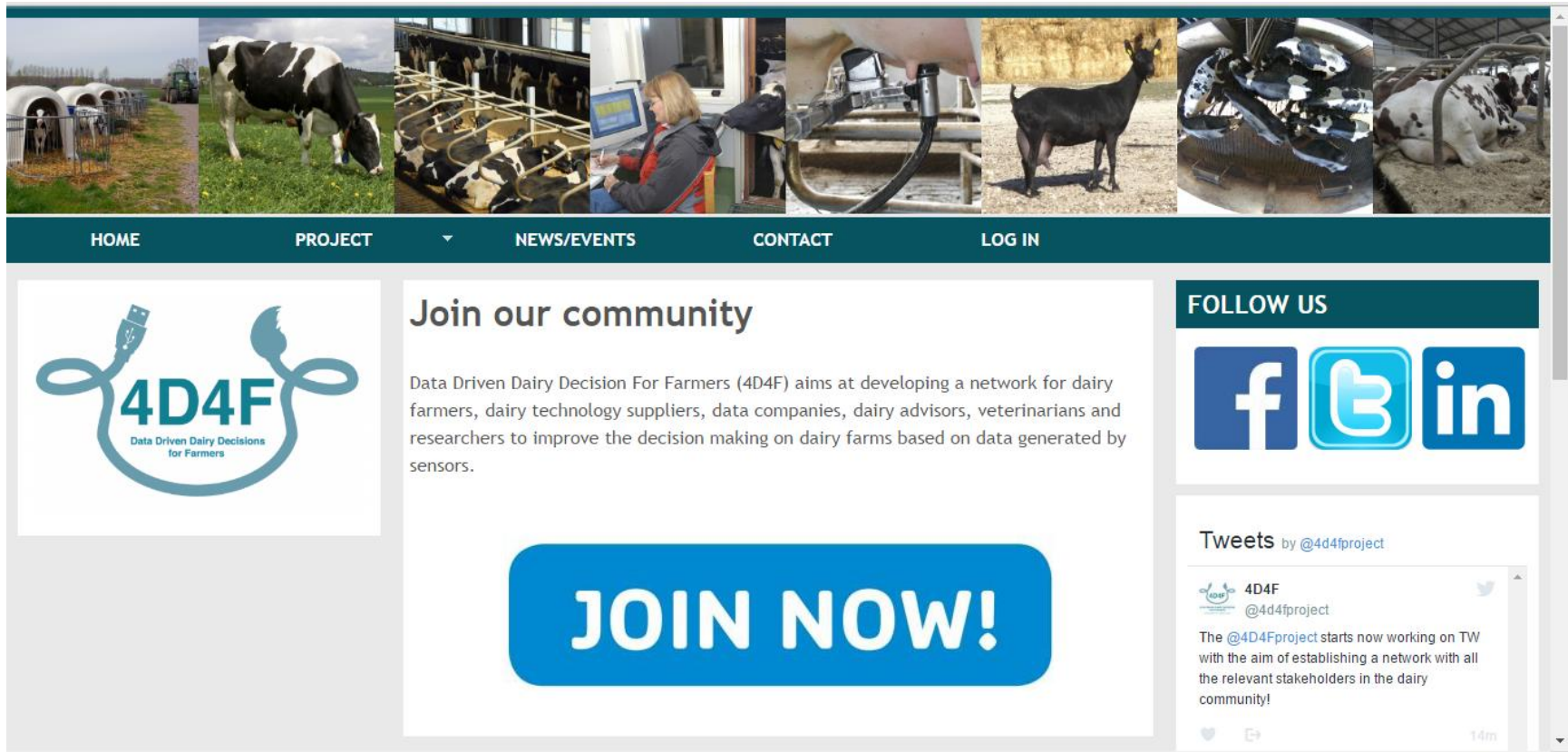
Help develop better products &  
services

## COP Benefits

- Learn from shared experiences
- Comprehensive source of Information
- Keep up to date with the latest knowhow
- Help farmers make a better return from investments
- Help researchers identify real problems
- Enable easier and better decision making on farm
- Improve quality of life for farmers and animals
- **AND IT IS FREE !**



## 4D4F website



Digital is the main reason just over half of the **companies** on the Fortune 500 have **disappeared** since the year 2000

Pierre Nanterme  
CEO of Accenture







It's just the beginning

# Thank you-Questions?

