# Digital Technologies for Irish Farmers

*Developing and governing digital technologies with the end user in mind*

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**Farm Business Options**
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# Digital Technologies in Farming



Sensors and 'Smart Machinery'

Apps and Farm Management Platforms

**DATA**

Drones and Satellites

Robotics and Automated Systems

For the farmer: data-driven decision making

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# Irish Farmers' and Digital Technology

- 2019 survey of 710 farmers

- 46% of farmers using some form of technology on their farm

- A further 40% indicated they were positive about using technology in the future

*Smartphones mainly used for checking weather, news and livestock prices, and for farm records management*

| Adoption rates | Beef | Dairy | Sheep | Tillage |
|---|---|---|---|---|
| **Smartphone** | **82%** | **89%** | **84%** | **94%** |
| Calf registration system | 56% | 86% | 26% | 13% |
| Camera monitoring in barn | 30% | 53% | 18% | 15% |
| Herd management system | 24% | 46% | 17% | 17% |
| Remedy recording system | 27% | 53% | 16% | 17% |
| GPS used for machine guidance/steering | 7% | 15% | 7% | 77% |
| Weather stations | 12% | 11% | 12% | 17% |
| Milking robot | 1% | 4% | 1% | 0% |
| Parcel boundary mapping with GPS | 5% | 5% | 11% | 55% |
| Health monitoring | 6% | 13% | 7% | 4% |
| Satellite imagery | 6% | 2% | 9% | 28% |

# Factors Influencing Digital Behaviour

Don't know how to use this technology
Don't have the skills to use this technology

Never heard of the technology before
Don't believe in the benefits of the technology
Don't trust the technology provider
Don't feel confident enough to use the technology

The technology is too dear
Internet coverage is not good enough
There's nobody to turn to if there's a problem
Haven't heard good things from other farmers
The technology is not user friendly



Capability → Motivation → Opportunity → Behaviour

Source: Michie et al (2011) The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*

# Good technology **design** comes from diverse and inclusive thinking

**H2020 NIVA Project: Geo-tagged photo app & system** for monitoring of CAP payments

If you are a scheme applicant and interested in taking part in the next test of the AgriSnap App, e-mail: agrisnap@agriculture.gov.ie

❑ **4 user-design workshops**
(73 actors: farmers, advisors, inspectors, EU partners)

Build a working app for testing

**Empathize**
Oct-Dec '19

**Define**
Jan-Feb '20

**Ideate**
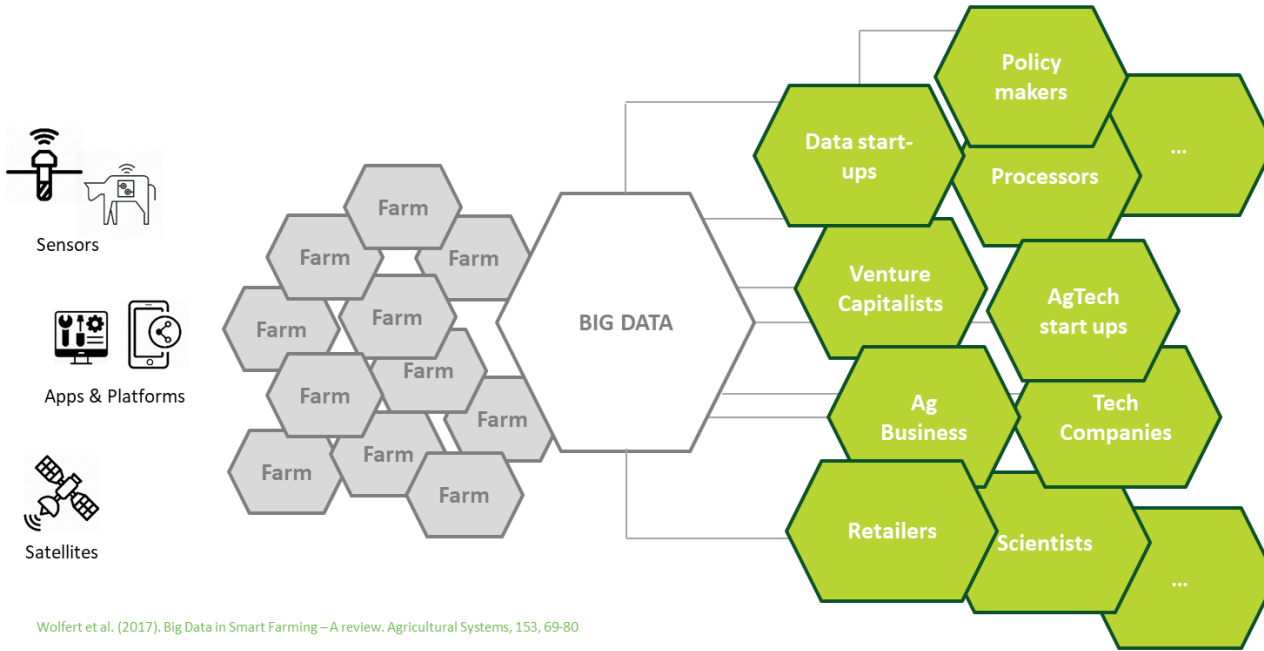Mar-May '20

**Prototype**
Jun-Aug '20

**Test**
Sept + '20

❑ **18 Key informant interviews**
(farm advisors, farm inspectors)

❑ **7 Farmer focus groups**
(41 farmers)

Identify key user needs

❑ **National pilot** (175 farmers & advisors)

❑ **EU Pilot** (48 farmer & advisors)

❑ **Evaluation**

**AgriSnap**
Please enter your 5 digit code below to enter

☐ I agree to the Terms and Conditio...

LOGIN

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

NIVA

Agrisnap is developed through NIVA under EU H2020

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# Good technology **governance** comes from diverse and inclusive thinking



Sensors

Apps & Platforms

Satellites

Farm (×13)

BIG DATA

Data start-ups

Policy makers

Processors

...

Venture Capitalists

AgTech start ups

Ag Business

Tech Companies

Retailers

Scientists

...

Wolfert et al. (2017). Big Data in Smart Farming – A review. Agricultural Systems, 153, 69-80



HOME » AGRI-BUSINESS » FARMERS CALLED TO VOICE THEIR VIEWS AT FIRST 'SMART FARMING' WORKSHOP

**Farmers called to voice their views at first 'Smart Farming' workshop**

Sylvester Phelan | May 10, 2019, 6:50pm

- **Who owns the data?**
- **Is farm data the same as personal data?**
- **What if 3rd parties want access to the data?**
- **Who should decide who gets access to data?**

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**AgriDISCRETE Project**

- Exploring good data governance in agriculture and forestry

- Running workshops to hear from different actors on the topic of data ownership and sharing

**We want to hear from *you***

- **In the next series of workshops, we will be testing the concept of a multi-sided data governance platform**

- **If you would like to take part, send us an e-mail:**

  **aine.regan@teagasc.ie**

# Gateway Technologies

Coronavirus
**COVID-19**

Has Covid-19 prompted farmers into an online and digital environment?

- Online marts

- Online newspapers

- Online advisory services

- Changed business models

Positive experiences have the ability to improve confidence and realising the potential of increased digitalisation on one's farm

Post-Covid, post-restrictions: Building back or building forward?

How do we ensure that nobody is left behind?

Teagasc

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# Thank You!