FIELD LABS FOR DIGITIZATION OF INDUSTRY

RECENT POLICY EXPERIENCES WITH DIGITIZATION IN THE NETHERLANDS

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QUESTIONS

- To what extent has the digital transformation changed opportunities to engage in research activities related to innovation for different actors and places?
- Are changes similar across academic disciplines and industry sectors?
- What are the expected trends? To what extent have appropriate multidisciplinary and multi-sectoral teams emerged to exploit the potential of data in research?
- Should policy intervene to ensure more widespread opportunities to innovate at the research stage? What are the organisational changes needed to facilitate a re-orientation of research organisations (and firms) in that regard?
- How does the digital transformation facilitate opportunities for extending research networks and collaborations with others (researchers, research organisations and firms)?

DIGITIZATION CHANGED THE OPPORTUNITIES FOR RESEARCH AND INNOVATION;

- **'Innovation hubs'**
  This concerns test beds, shared facilities, triple helix partnerships, **field labs** in which companies knowledge and / or education institutes or the government work together onthe digital transformation. Goals are development, testing, implementation and skills development. A business platform can be part of an innovation hub.

- **'Business platforms'**
  This involves **multisided platforms** that bring together supply and demand in different forms. Like Uber, AirBnB, etc. In the literature this always refers to the platform economy. Many of these platforms are driven by digital techniques and digital techniques also ensure a changing structure of these platforms.

- **'Data platforms'**
  This involves all kinds of **reference architectures for data exchange**, such as Industrial Data Space and the Industrial Internet Reference Architecture. Standards play an important role in this. These reference architectures aim to achieve interoperability. Data platforms are often linked to a specific domain (Uber = business platform with underlying data platform). That is where business and data platforms come together. New techniques are pretty disruptive. Consider, for instance, the role of blockchain that puts the position of the traditional intermediary under pressure (Uber concept without Uber Inc., but with margin for the taxi operator).

DIGITIZATION CHANGED THE OPPORTUNITIES FOR RESEARCH AND INNOVATION;

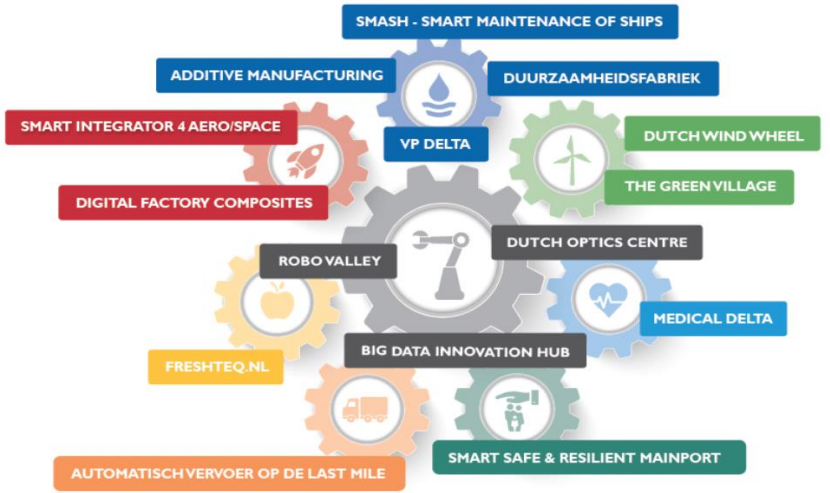
- New forms of cooperation: Smart Industry field labs
- Smart Industry: digitization of industry
- **Bottum-up development of field labs**.
- ***Field labs*** are an environment where Smart Industry solutions are developed, tested, implemented as well as where people can learn to apply them.

ARE CHANGES SIMILAR ACROSS ACADEMIC DISCIPLINES AND INDUSTRY SECTORS?

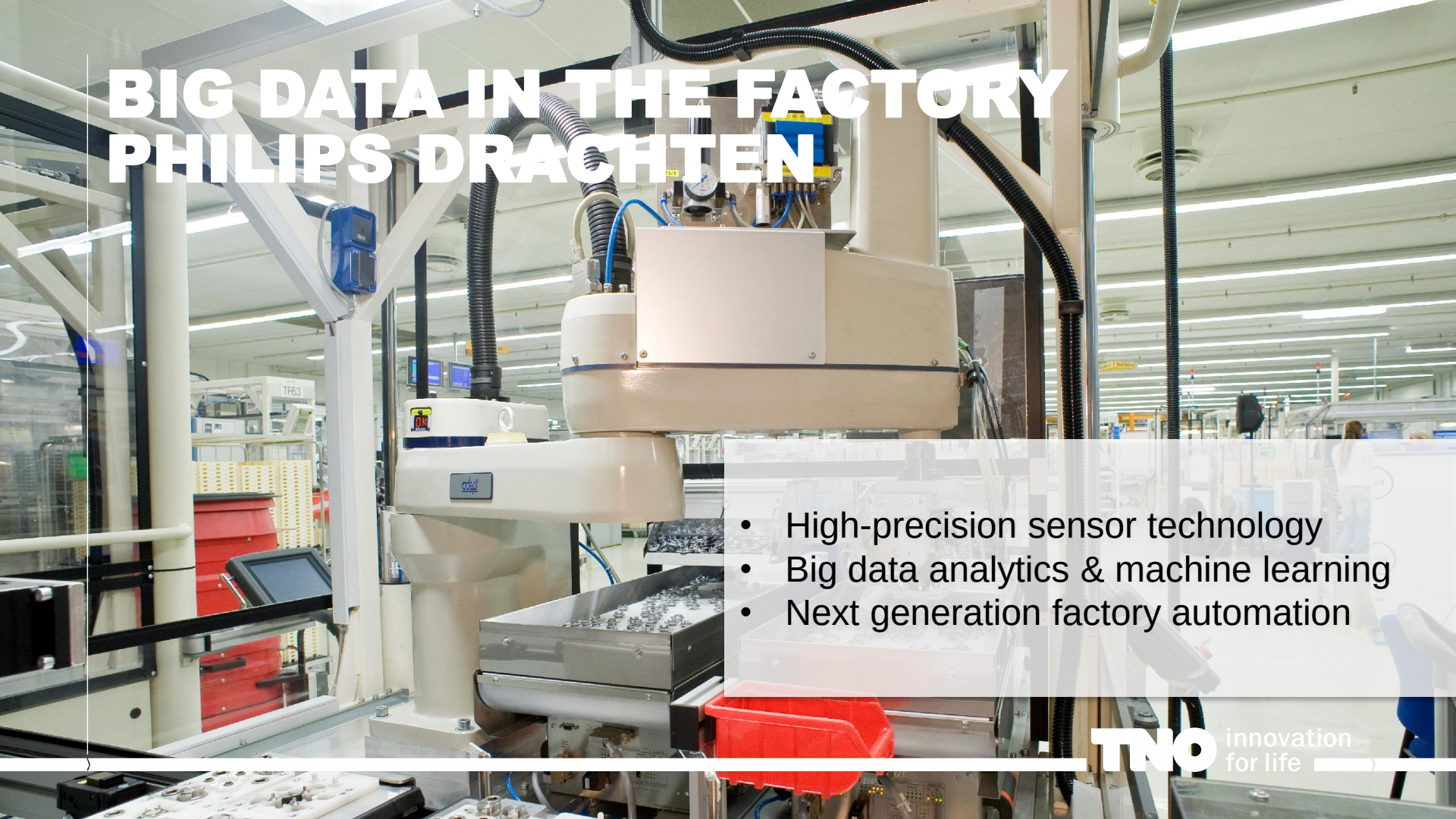
- The use of the field lab approach is similar across disciplines and sectors.
- 10 investigated field labs address more than 15 sectors and many disciplines like Medical science, Agricultural science etc.

APPROPRIATE MULTIDISCIPLINARY AND MULTI-SECTORAL TEAMS EMERGED TO EXPLOIT THE POTENTIAL OF DATA IN RESEARCH?

- Number field labs increased from 10 to 34 in 3 years
- Inspiration for regions and EU (digital innovation hubs)
- The Netherlands has adapted field labs as an attractive instrument for executing their innovation policy to create data spaces for network centric collaboration



BIG DATA IN THE FACTORY
PHILIPS DRACHTEN



- High-precision sensor technology
- Big data analytics & machine learning
- Next generation factory automation

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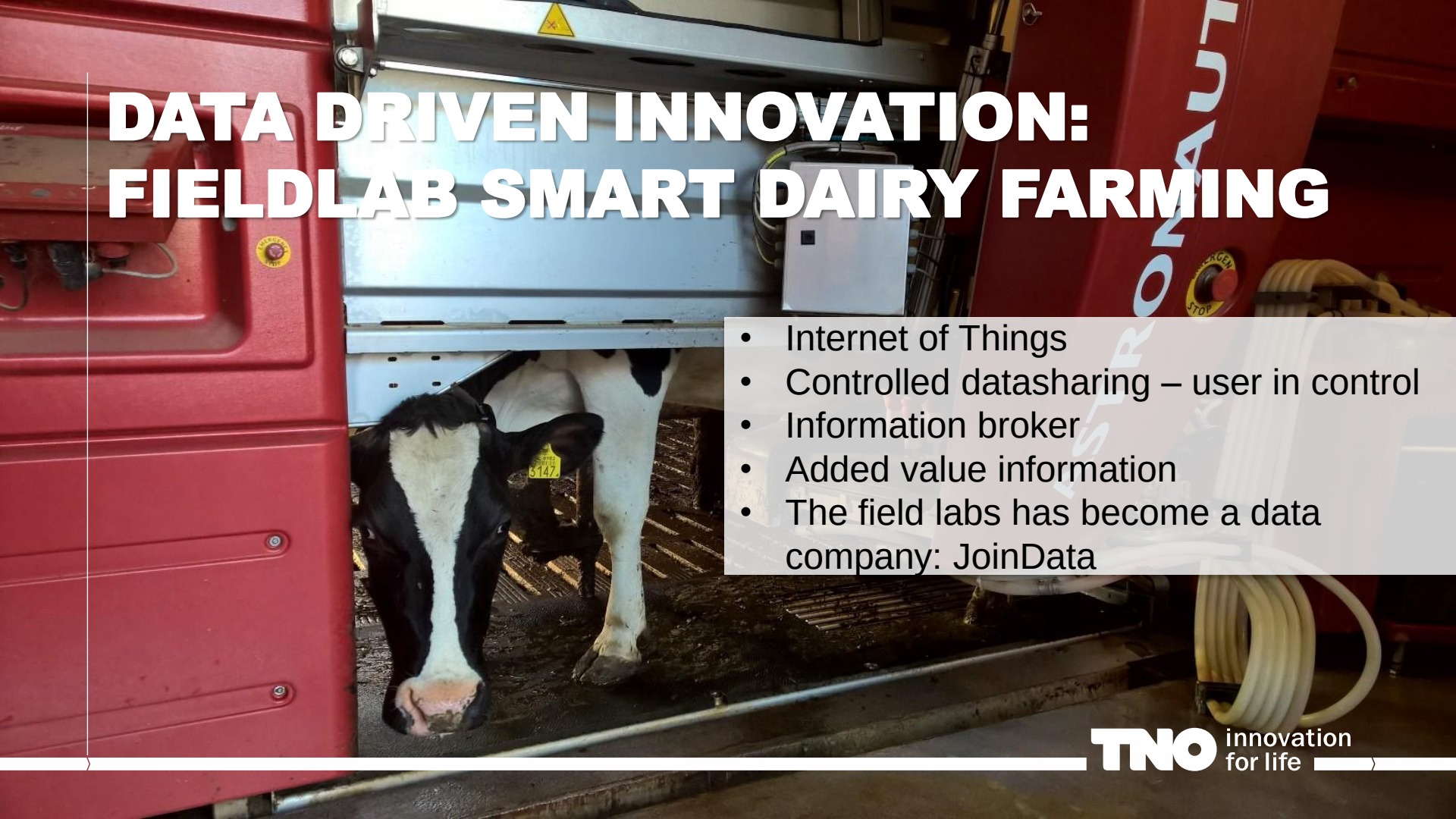
DATA DRIVEN INNOVATION: FIELDLAB SMART DAIRY FARMING



- Internet of Things
- Controlled datasharing – user in control
- Information broker
- Added value information
- The field labs has become a data company: JoinData

NETWORKED COLLABORATION: FIELDLAB SMART CONNECTED SUPPLIER NETWORK

- Collaboration in the supply chain
- Interconnecting ERP and PLM systems

Brainport Industries

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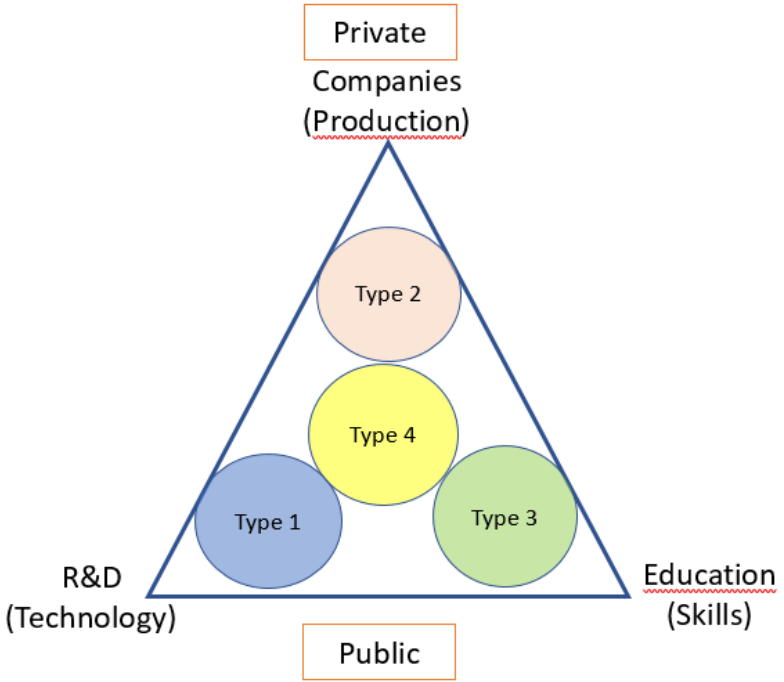
POLICY SHOULD STIMULATE THE USE OF FIELD LABS

- The bottom up approach of field labs seems useful → digital innovations and the related business models are hard to predict

- Field labs ask for an adaptive approach: portfolio management
  - →are the most important ICT innovations covered? (TNO case study for EZ / OECD)
  - →stimulate ICT development on medium TRL
- Professionalizing of the field lab approach itself → increasing cooperation and standardization



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THE DIGITAL TRANSFORMATION FACILITATE EXTENDING RESEARCH NETWORKS

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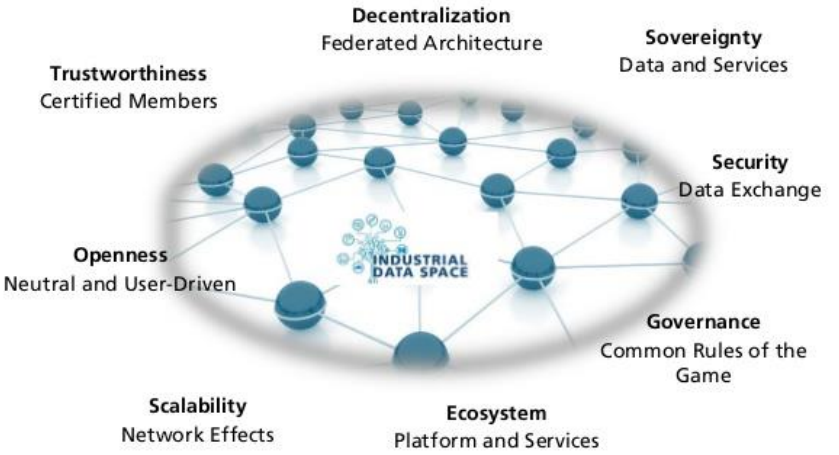
- It becomes easier to cooperate across country borders: cooperation between SCSN & Industrial Data Space

The Industrial Data Space aims at a »Network of Trusted Data«



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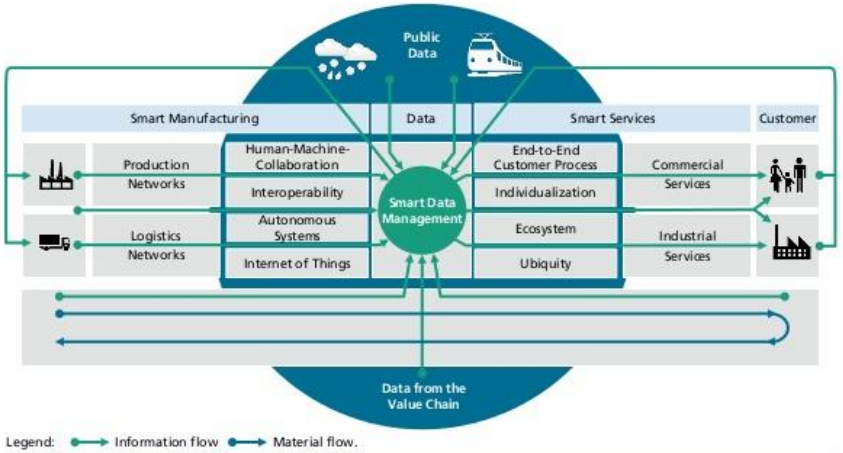
Data is the strategic resource to link Smart Services and Smart Manufacturing



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