Smart Farming as a tool to realize Fair Data Economy

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Speeding up innovation in bioeconomy!

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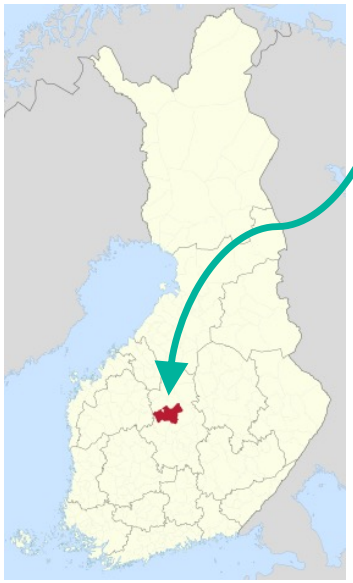
Where are we and who we are?
Jamk Institute of Bioeconomy (BTI)



Located in Central Finland

- Meeting point for competence and business development in bio- and circular economy
- Our goal is to strenghten, find and establish new business in bio- and circular economy

Fair Data Economy & Agricultural DataSpace

BioTalks

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The European way of sharing data

Objective: *"Create the right conditions for people, companies and authorities to share data in a secure, trust creating manner."*

- Building **trust** in data sharing.
- **Personal** and **non-personal data** in scope.
- **Re-use of public sector information**, also through novel mechanisms that protect information privacy (personal data, confidential business data).
- Ensure **fairness** in the allocation of data value among the actors of the data economy.
- Support the creation of **sectoral common European data spaces** including the necessary infrastructure.
- **European rules and values**, in particular personal data protection, consumer protection legislation and competition law, are fully respected.

European Commission

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the Lisbon council
think tank for the 21st century

Policy Brief

A Roadmap for a Fair Data Economy

I. Put the EU data economy framework to work

II. Lead by example with data held by government

III. Grow commercial ecosystems to use data better

IV. Develop the infrastructure to **break through sectoral silos**

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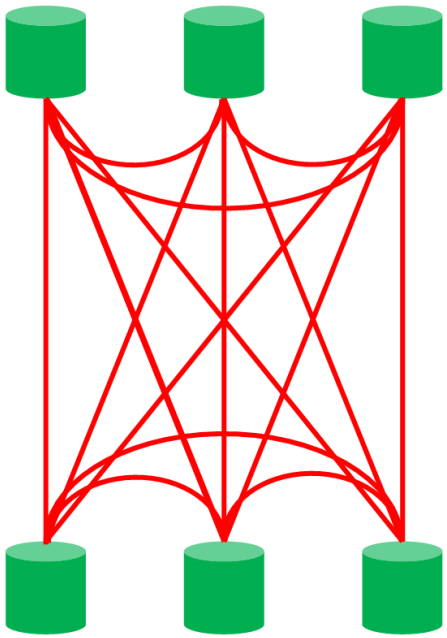
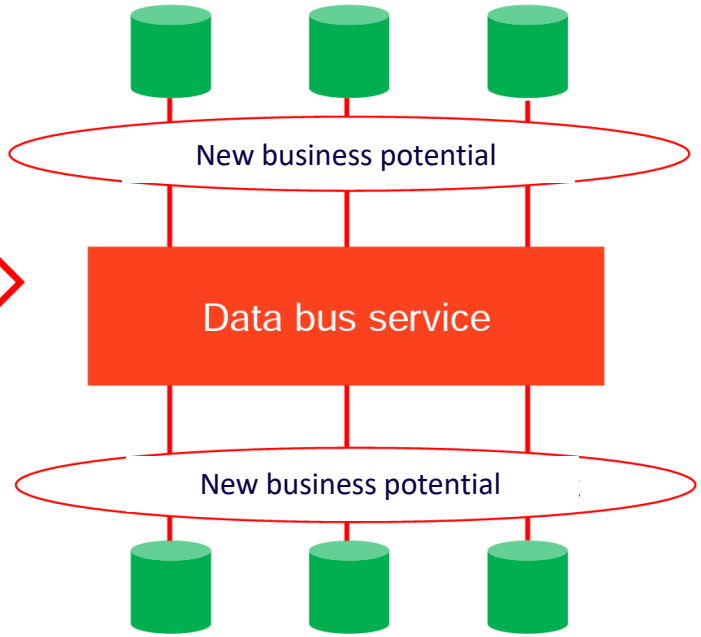
DataSpace = *A cultural change!*



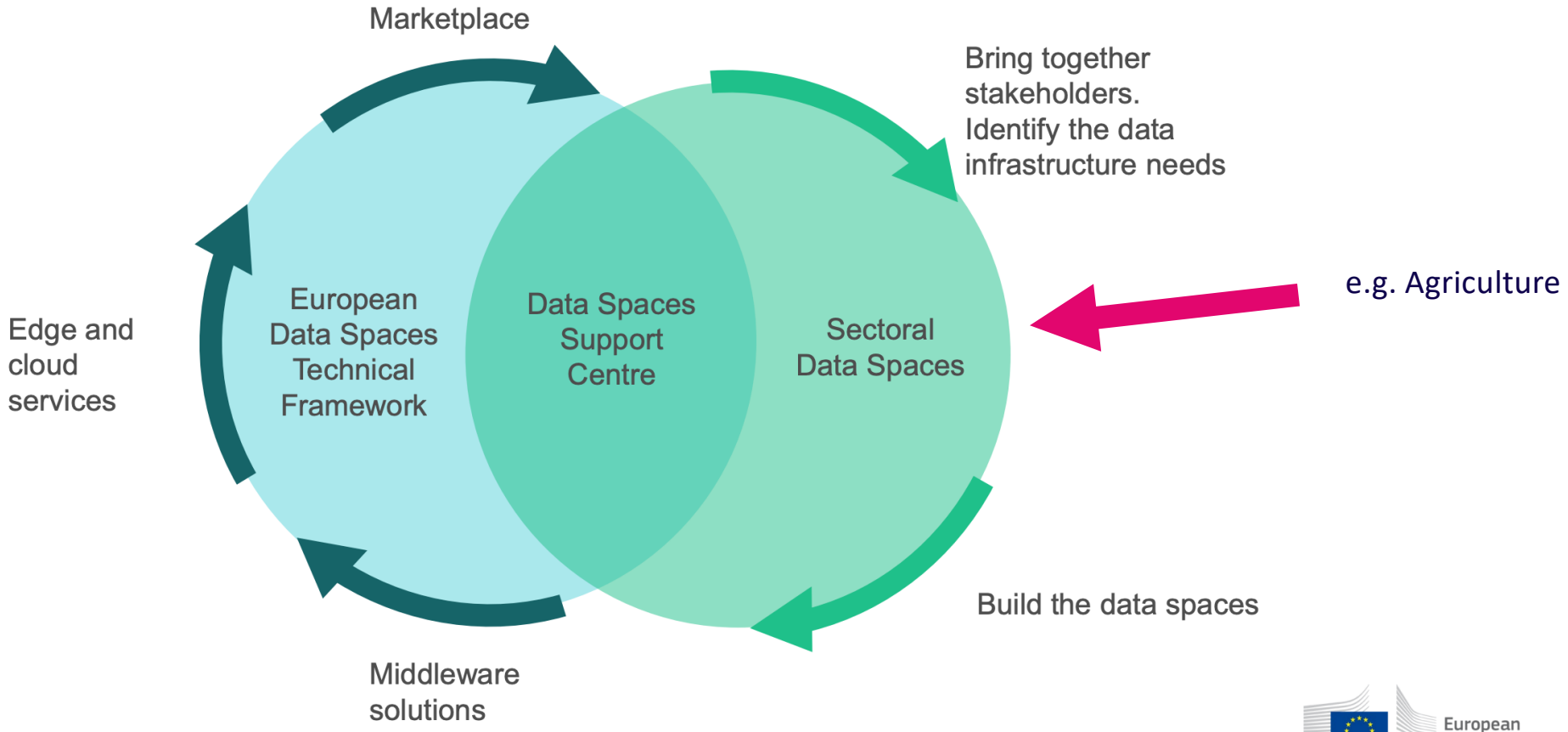
Speeding up the transition!
→ European competitive advantage



DataSpace Europe
Tritom

Dramatic change in business
→ Some win some loose
→ Protectionism

Data Spaces deployment in DIGITAL



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Fair Data Economy?

A human-driven, fair data economy is based on **European values**:

The use of data creates well-being and competitiveness and helps to develop societies.

Fairness means that the interests of individuals, businesses and society are balanced.

SITRA
The future society

Implementing Fair Data Economy in Agriculture

gaia-x

Data utilization

Farming processes
- Biological processes
- Operational practices
- Markets and business environment
- ➢ Situational awareness, control, automation, autonomy, continuous improvement
- ➢ Focus on effective primary use of data

Business processes and ecosystems
- Farm - Tech provider
- Farm - Farm
- Farm - Producer
- Farm – Consumer
- ➢ Joint value creation
- ➢ Verifiability, traceability, transparency
- ➢ Collaboration and trust
- ➢ Focus on secondary uses of data

Data sources

- The quality of raw data by primary use
- Processing and manipulation of data for secondary uses
- Metadata descriptions
- Effective use of FAIR principles (findable, accessible, interoperable, reusable)

Rules and policies

- Data sovereignty
- Right to control the data use
- EU CoC for Data in Agriculture
- EU regulation (including Data Act)
- Data agreements
- Technical data usage control mechanisms

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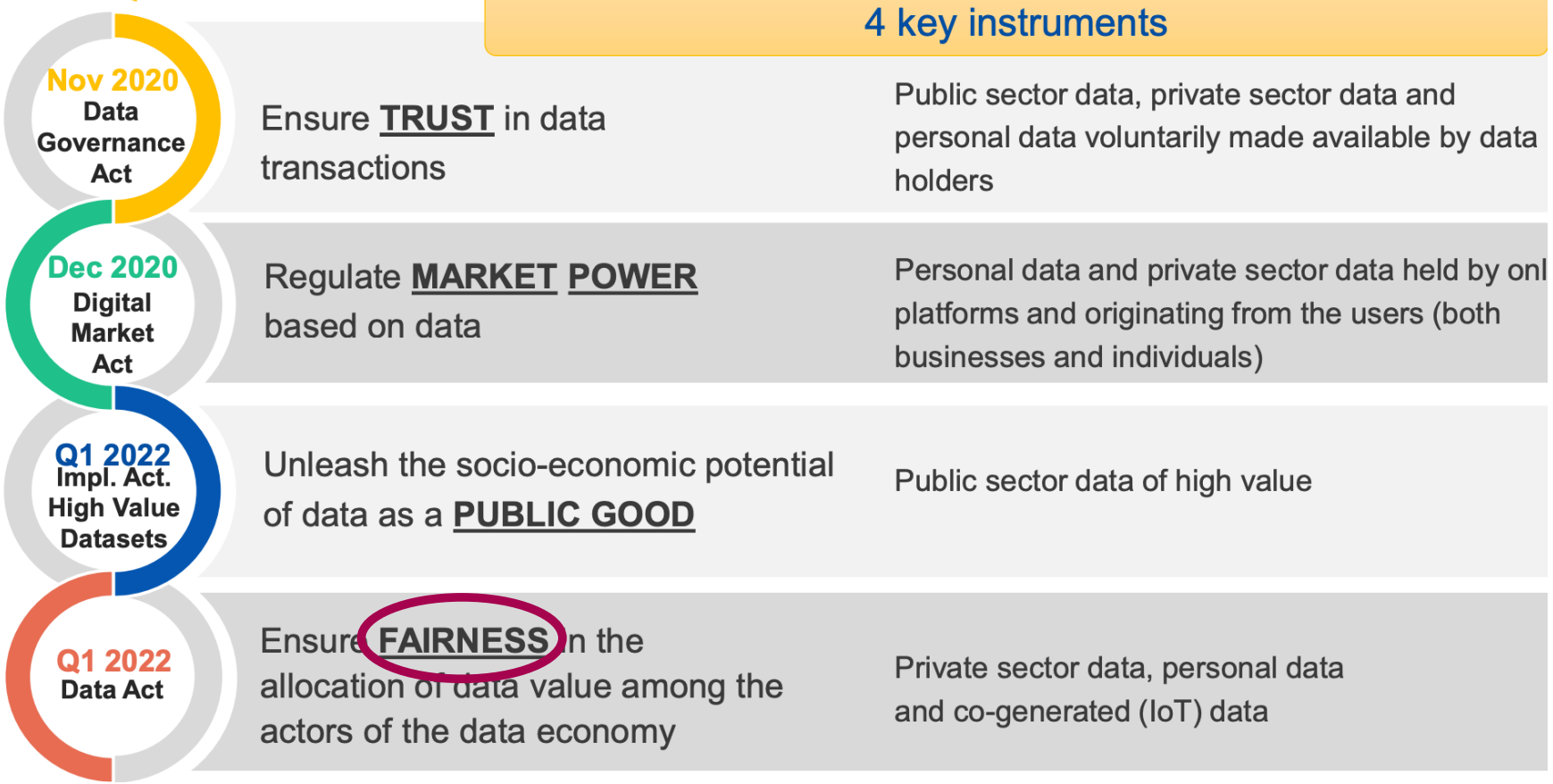
European Strategy for Data – Legislative



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Smart Farming in Fair Data Economy

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Smart Farming / Bioeconomy?

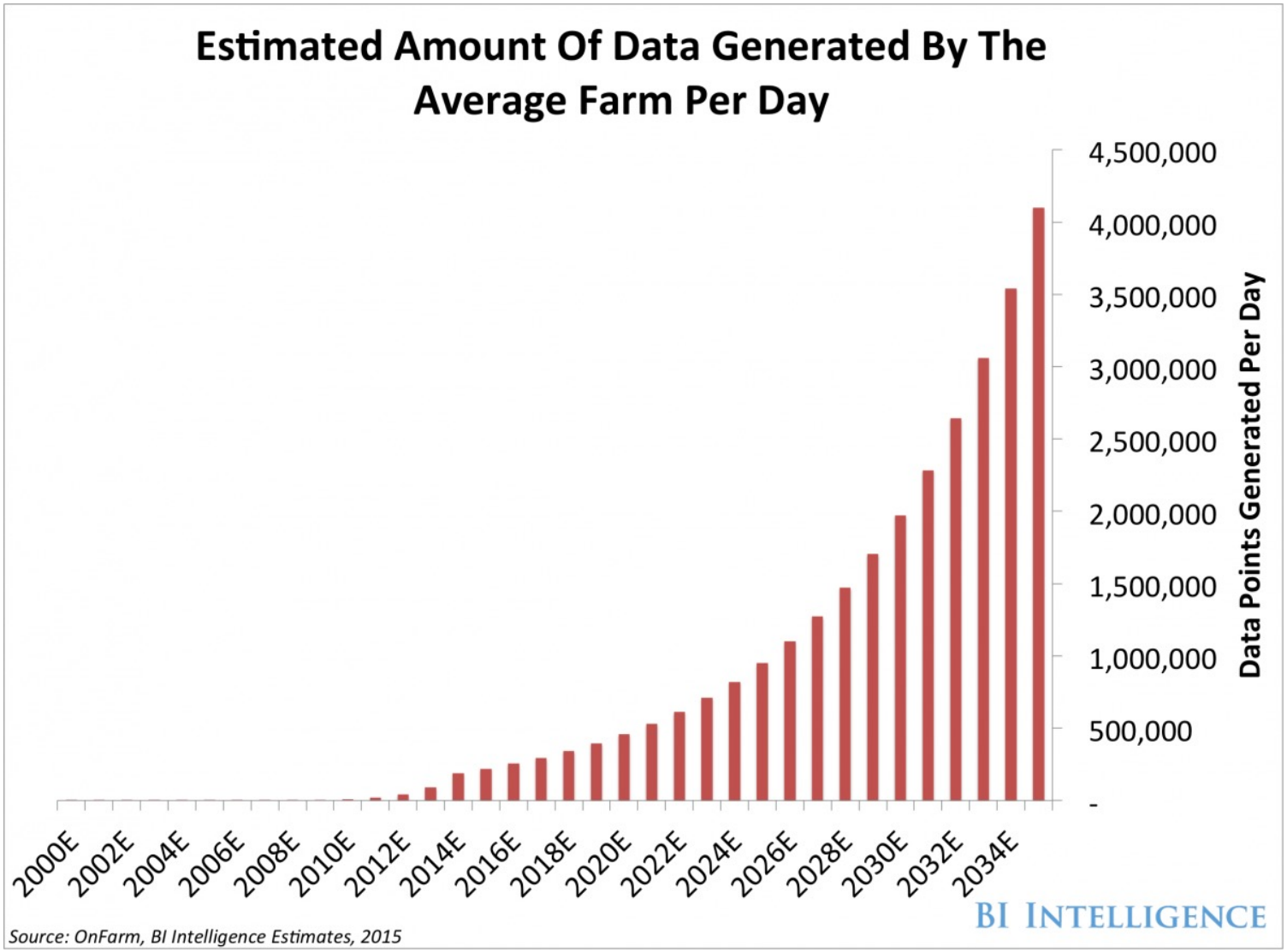
- Smart Farming and Bioeconomy utilise **new technologies and methods** to make these processes more **profitable and productive** but also filling the requirements of the **resource-, environment-, and climate-smart** goals:

Green Deal

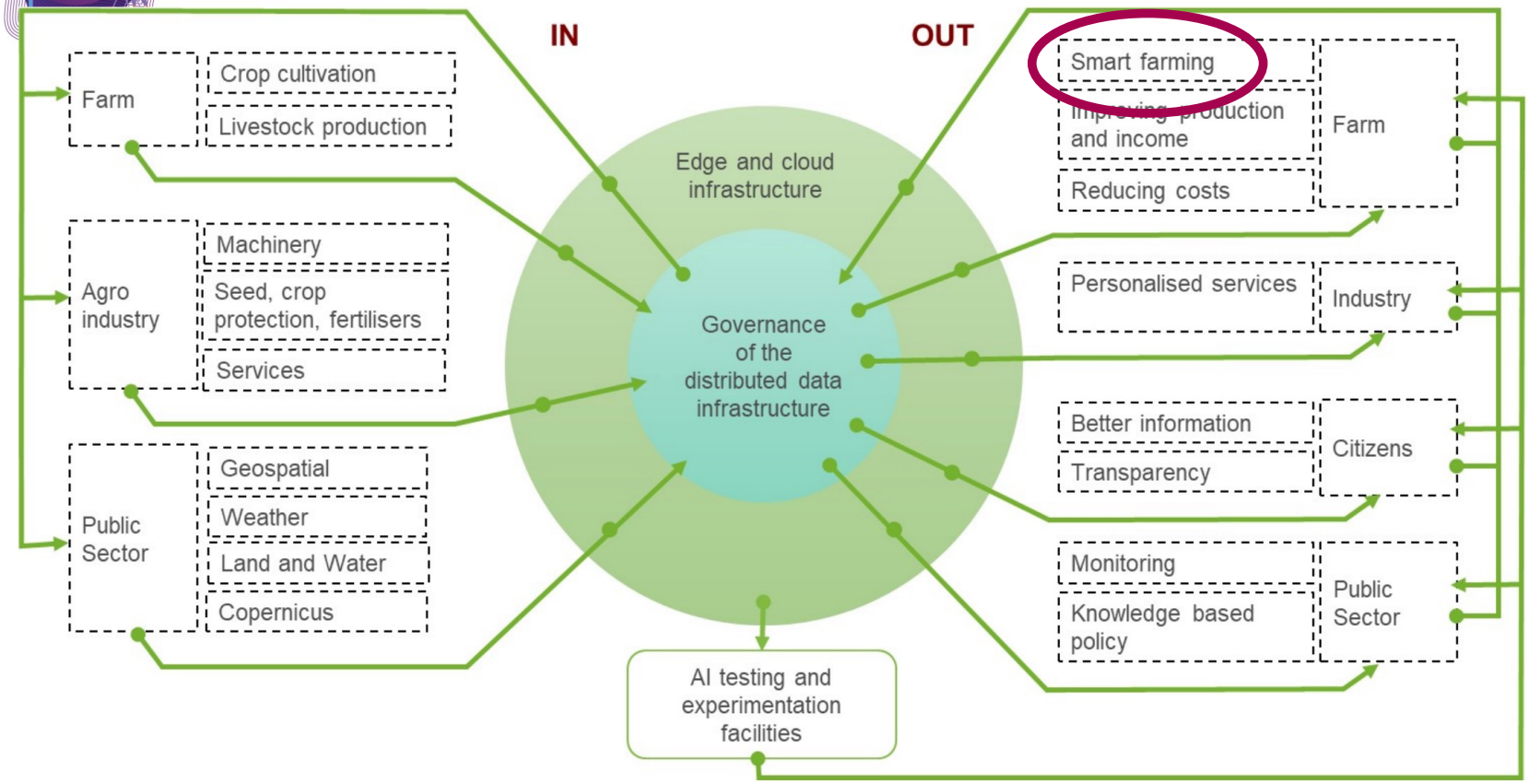
Farm to Fork

Data Strategy

etc.

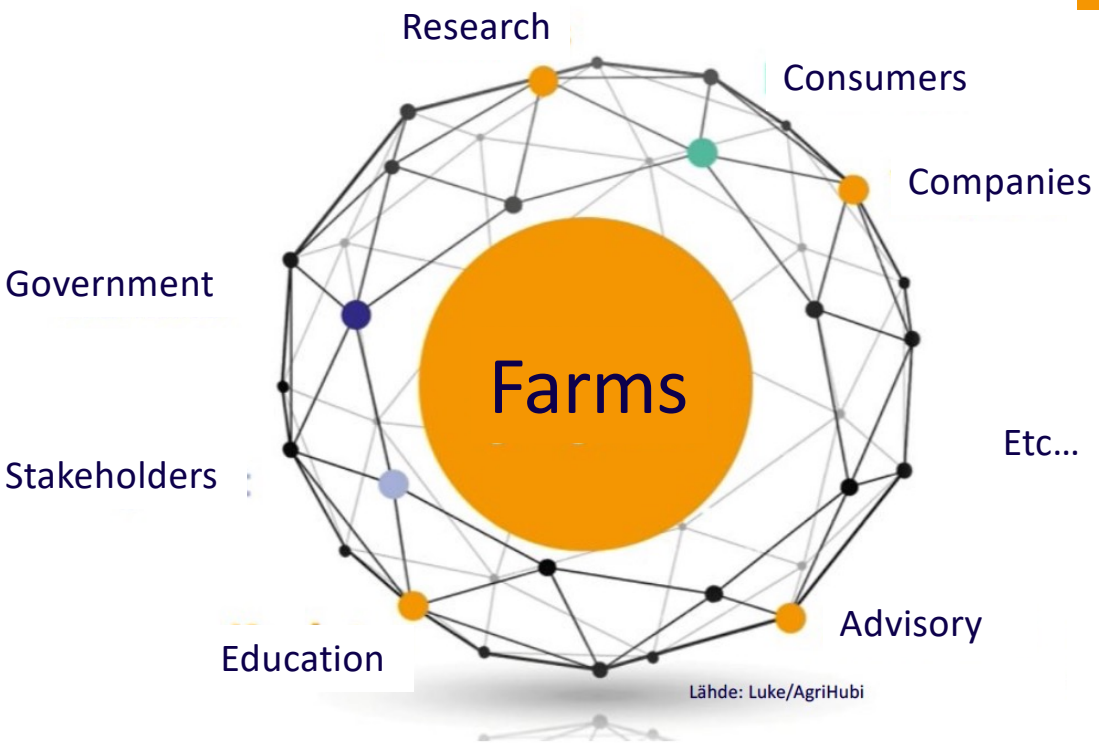

Estimated Amount Of Data Generated By The Average Farm Per Day
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
Data Points Generated Per Day
2000E
2002E
2004E
2006E
2008E
2010E
2012E
2014E
2016E
2018E
2020E
2022E
2024E
2026E
2028E
2030E
2032E
2034E
BI INTELLIGENCE
Source: OnFarm, BI Intelligence Estimates, 2015

Agriculture Data Space: some first reflections



Smart Farming as a network

-the same network that enables Agricultural Data Space!



-farms in centre
-formed by the utilizers of data
-new business created

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Conclusions

-Data Spaces are coming and changing the game, some win some loose

-New opportunities arise

-Fairness of operation has to be actively ensured

-Smart Farming / Smart Bioeconomy / …systems are using and providing lot of Data Space data

-these systems enable the framework for Fair Data Economy in agriculture and related businesses

Plus:

-Usability of data is a major issue (accuracy, relevance, metadata…)

-Cyber security as well …

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Fair Smart Farming in BTI

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Way of operation: through companies

→ Speeding up uptake of smart technologies

- Uptake is realized only through markets: benefits of actors speeds it up
- Enhancing the acceptability of products & services (economics, usability, compitability, values)
- Developingbusiness models is the central goal
- Fair Data Economy in practice!

→ Wide co-operation is required to enhance adoption (farmers, contractors, input manufacturers, commerce, startups, funders…)


AGCO
POWER

Valio

NEOVA

NESTE

crosscontrol

Cinia

DataSpace
Europe

GrainSense

datasense
smart environments technology

KAPPAZETA

MSK
Group

Mtech
DIGITAL SOLUTIONS

CarbonEye Europe

MTK

YARA

nokian
TYRES

SAMPO ROSENLEW

SOIL SCOUT

TUME

VALTRA

YIELD SYSTEMS

ANICARE

AgriHubi

ÄlyAgri

gaia-x

BIOBORD
PLATFORM

KRINOVA
INCUBATOR & SCIENCE PARK

MAASEUTUVERKOSTO

Nordic Testbed Network
Supporting digital transformation in
the Nordic bioeconomy

SMART
AGRI
HUBS

ERIAFF network

EurAgEng

FinAgEng

ISPA
International Society
of Precision Agriculture

KESKI-SUOMEN LIITTO
REGIONAL COUNCIL OF CENTRAL FINLAND

Saarijärvi

SITRA

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EUROPEAN OFFICE

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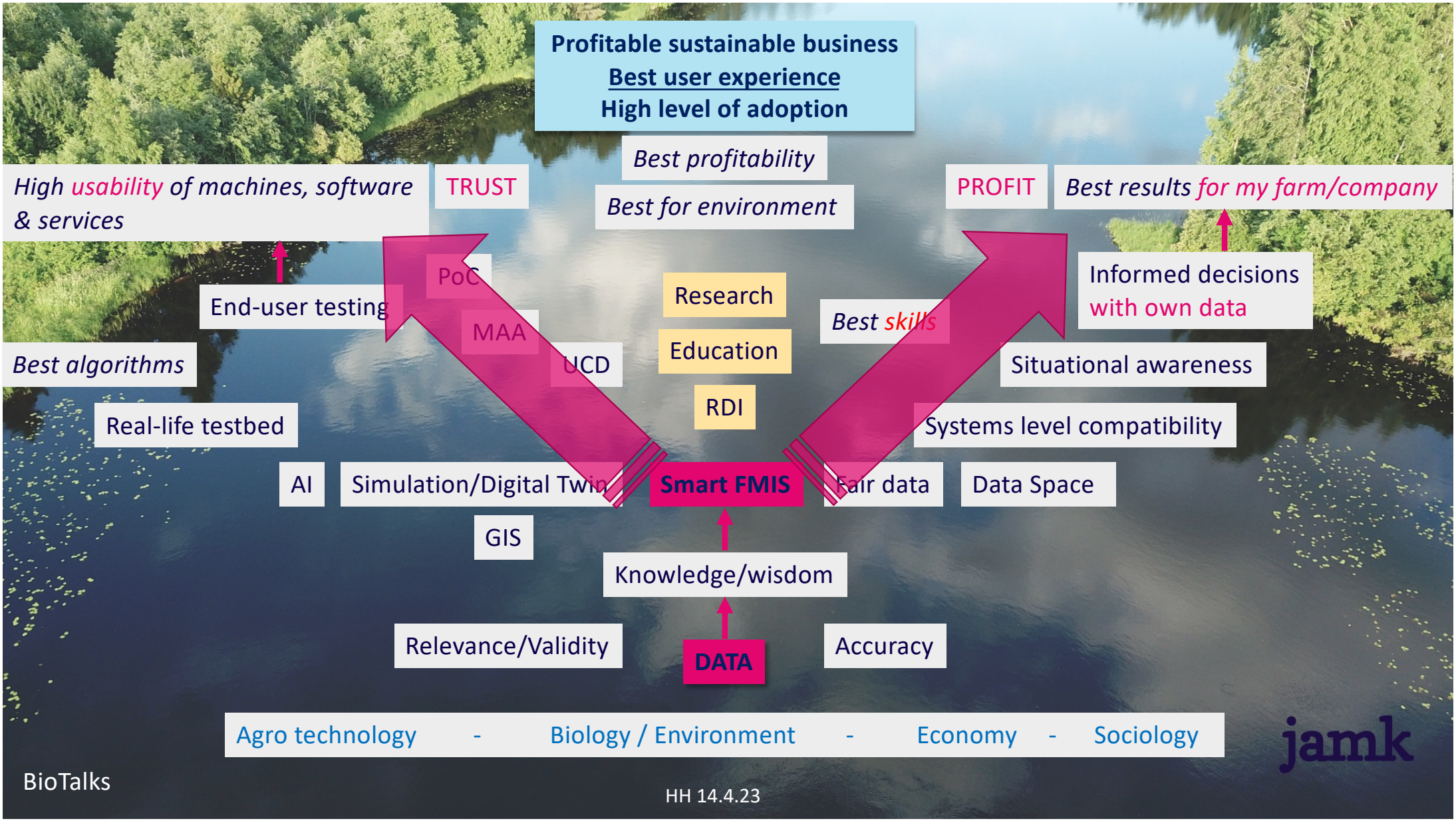
Profitable sustainable business
Best user experience
High level of adoption
Best profitability
Best for environment
High usability of machines, software & services
TRUST
PROFIT
Best results for my farm/company
End-user testing
PoC
MAA
UCD
Research
Education
RDI
Best skills
Informed decisions with own data
Best algorithms
Situational awareness
Real-life testbed
Systems level compatibility
AI
Simulation/Digital Twin
Smart FMIS
Fair data
Data Space
GIS
Knowledge/wisdom
Relevance/Validity
DATA
Accuracy
Agro technology - Biology / Environment - Economy - Sociology
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Digitalization at Your fingertips!

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sFMIS

(smart Farm Management Information System)

Situational awereness
Informed decisions
Ease-of-use

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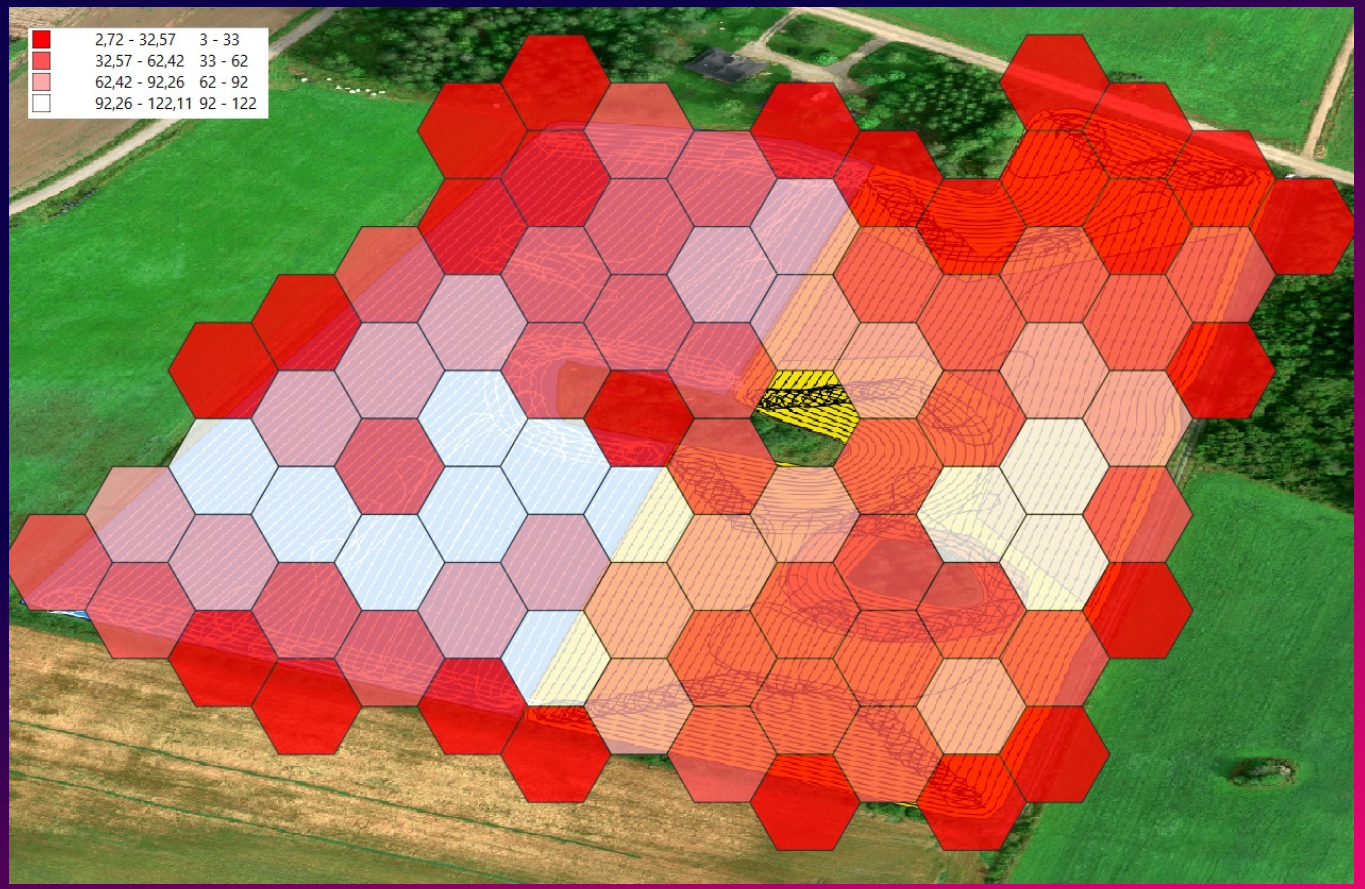
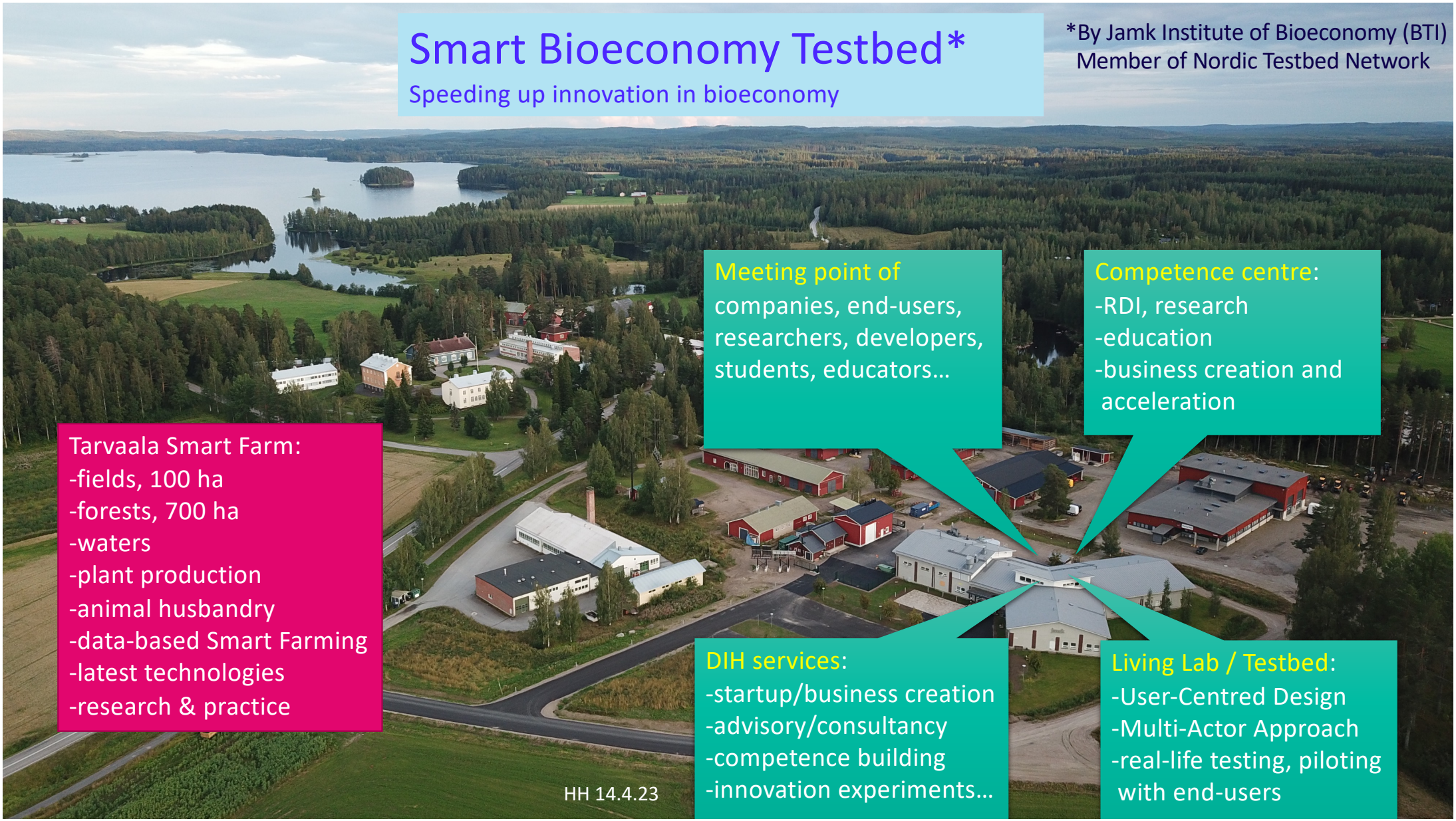
Profitability maps, ROI




Smart Bioeconomy Testbed*
Speeding up innovation in bioeconomy
*By Jamk Institute of Bioeconomy (BTI)
Member of Nordic Testbed Network
Meeting point of
companies, end-users,
researchers, developers,
students, educators…
Competence centre:
-RDI, research
-education
-business creation and
acceleration
Tarvaala Smart Farm:
-fields, 100 ha
-forests, 700 ha
-waters
-plant production
-animal husbandry
-data-based Smart Farming
-latest technologies
-research & practice
DIH services:
-startup/business creation
-advisory/consultancy
-competence building
-innovation experiments…
Living Lab / Testbed:
-User-Centred Design
-Multi-Actor Approach
-real-life testing, piloting
with end-users
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