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Digital and Data technologies in agriculture: R&I for sectoral transformation

Breakout session 5



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European
Commission

Objectives

- Discuss challenges and opportunities going along with initiatives under the *European Strategy for Data* for agriculture and R&I for the sector
- Reflect on R&I achievements
- Identify further R&I needs and priorities



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Agenda

- | | |
|---------------|----------------------------|
| 13:00 – 13:05 | Welcome and housekeeping |
| 13:05 – 13:20 | Keynote speech |
| 13:20 – 13:35 | Overview of R&I activities |
| 13:35 – 14:15 | Panel discussion |
| 14:15 – 14:25 | Q&A |
| 14:25 – 15:10 | Co-creation discussion |
| 15:10 – 15:30 | Wrap-up and closing |

Part I

Part II





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Keynote speech



Dr. Bertin Martens

Bruegel (Brussels) Bruegel (Brussels) and Tilbur
Law & Economics Centre (Tilburg University)

***The European Strategy for Data
Challenges and Opportunities for R&I
and Agriculture***



A European Strategy for Data (2020)

- Until recently: EU GDPR for personal data was the main data regulation; no regulation for non-personal industrial or commercial data = bulk of agricultural data.
- Objectives: facilitate B2B data trade and competition in downstream data-driven services markets, and re-use of data for Research & Innovation.
- The 2020 Communication announces horizontal and sectoral non-personal data initiatives: Data Act and sector data spaces, incl. Common European Agricultural Data Space (CEADS).

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Where do agricultural data markets fail?

- Digital farming and distribution promise to increase agricultural productivity & sustainability
- Distribution of these gains between farm(er)s and (digital) service suppliers? If farms do not benefit, they have no incentive to invest in digital technologies.
- Primary market failure: farm data lock-in in machines and devices, lack of data portability prevents farms from seeking alternative aftermarket service providers, reduces competition.
- Second market failure: no incentives for farm data pooling, reduces potential for innovation
- Will farmers' control over data enable them to appropriate a larger part of these gains?
- How? (a) price competition in downstream services, (b) selling data, (c) more innovation?

EU Code of Conduct for agricultural data sharing (2018)

- Voluntary code, not legally binding, agreed between farmer organizations and agro-food industry
- Farm operator as “*data originator*”: right to decide who can access/use data, including portability
- Covers all key concepts: portability to third-parties, re-use of data
- Agreed contract takes priority over Code: market power still determines what happens
- Many parties can claim access to B2B farming data: co-generated data, raw & processed data
- Farm or farmer? Non-personal business data not subject to GDPR, requires new regulation

EU Data Act (2023?)

- Data regime for non-personal IoT / machine data, not for services data. Ex.: agronomic services
- Transparency in available data, contract between manufacturer / data holder and farm as user
- Solves data lock-in issue: users have the right to freely access raw data generated during use.
- Third-party portability right, but subject to payment of collection, storage and transmission costs
- What does FRAND data pricing mean?
- Unfair? Farms pay twice for their data: for the device that collects, and for third-party re-use.
- Competition restrictions: data cannot be used to compete with product manufacturers

The Common European Agricultural Data Space (CEADS)

CEADS: *“A trusted data space to enable the agriculture sector to transparently share and access production data, open data and other public data, allowing for an increase in its economic and environmental performance.”*

- Value of pooled data across farms, producers, value chain, exceeds value of fragmented data
- Which data go into CEADS, under which conditions? Who can access data, under which conditions?
- Voluntary pooling: do farms have incentive to share data?
- Gap between private and social value of agricultural data, results in sub-optimal pooling.

The Common European Agricultural Data Space (CEADS)

Imagine a **maximalist** CEADS that contains all existing relevant data.

- Potential benefits, problems & costs? Who gains and who loses?

Imagine a more realistic “**reduced**” data space:

- Which data would still voluntarily go into that space?
- Reduced benefits & costs?
- No individual farm data, or anonymized? How detailed?

The EU Data Governance Act (2021)

- Ch III sets conditions for data intermediation services: “a commercial data sharing service between data holders and users”
- Art 2(11) excludes many agricultural data services that aggregate and/or transform data to add value and license their use, or client interaction services offered by a single data holder.
- Only pure intermediaries without data value-added: Ex.: JoinData (NL), DJustConnect (BE).
- Can they be financially viable without value-added? Pure intermediaries do not scale up easily.
- Does the DGA have any implications for (role of intermediaries in) agricultural innovation?
- Chapter II in DGA on access to public sector (agricultural) data: extension of Open Data Directive?



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Overview of R&I activities supporting digital transformation of agriculture



Valerio Abbadessa

European Commission, DG AGRI



Joel Bacquet

European Commission, DG CNECT

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Horizon Europe Strategic Plan 2021-2024



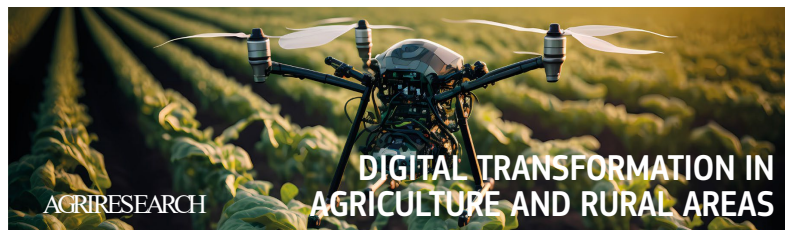
Key strategic orientations: B. RESTORING EUROPE'S ECOSYSTEMS AND BIODIVERSITY, AND MANAGING SUSTAINABLY NATURAL RESOURCES

R&I will be a key driver in accelerating the transition to **sustainable, low ecological footprint, healthy and inclusive food systems** – from primary production to consumption. Farmers and primary producers will be empowered to manage land, animal resources, soil, water and nutrients **in sustainable ways** [...] Efforts to boost **digitalisation** [...] will foster the development of tailored **digital technology**-based solutions enabling **sustainability and transparency**, as well as **enhance data generation capacities** and enhance **databases** increasing their effectiveness.

IMPACTS - Cluster 6 FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE & ENVIRONMENT

- Food and nutrition security for all from **sustainable food systems** from farm to fork
- **Balanced development of rural**, coastal and urban areas
- **Innovative governance models** enabling **sustainability, environmental observation**

Digital transformation of agriculture and rural areas: Horizon 2020



Digitalisation, digital transformation, digital technologies,
digital solutions

7 projects

€ 63 million*

• *EU contribution*

Examples of projects on digital & data technologies



- **NIVA** (2019-2022) [*A New IACS Vision in Action*](#)



- **DEMETER** (2019-2023) [*Building an Interoperable, Data-Driven, Innovative and Sustainable European Agri-Food Sector*](#)



- **ATLAS** (2019-2023) [*Agricultural Interoperability and Analysis System*](#)



- **MEF4CAP** (2018-2021) [*Monitoring and Evaluation Frameworks for the Common Agricultural Policy*](#)

Digital transformation of agriculture and rural areas: Horizon Europe (2021-2024)



Digitalisation, digital transformation, digital technologies,
digital solutions

15 projects

€ 75 million*

* EU contribution
@ includes part of the EU
contribution to the co-funded
partnership Agriculture of Data

Examples of projects on digital & data Technologies



- **DIVINE** (2022-2025) Demonstrating Value of agri data sharing for boosting data Economy in agriculture



- **ScaleAgData** (2023-2026) Scaling Agricultural Sensor Data for improved Monitoring of Agri-Environmental Conditions



- **CrackSense** (2023-2026) High throughput real-time monitoring and prediction of fruit cracking by utilising and upscaling sensing and digital data technologies



- **AgriDataValue** (2023-2029) Smart Farm and Agri-environmental Big Data Space

Partnership Agriculture of Data

What: Support sustainable agriculture in Europe as well as policy monitoring and implementation by using the possibilities offered by digital and data technologies in combination with environmental observation and other agricultural data

Who: Co-funded by EU, with Member States and Associated Countries, involving ministries, funding organizations, research organisations and key stakeholders (policy makers, space agencies, industry, etc.)

How: Development of innovative data-based solutions and services for the private and public domain, scale them up through the capitalization of data

Where: Europe-wide

When: (tentatively) from end 2023/early 2024; 7-10 years duration



Digital Europe is complementary to other programmes with investments in digital

EU-wide collective effort					National regional and local			Financial instrument
Horizon Europe	Digital Europe	CEF	Creative Europe	Health	Cohesion	Agriculture Funds	RRF	InvestEU
Research Innovation	Strategic capacities: computing, data, testbeds, etc. Advanced digital skills EU-Wide deployment	Broadband and 5G roll out Connecting Communities	Creative industry Media	Telemedicine eHDSI	Digital connectivity in white and grey areas Support to enterprises in line with Smart specialisation Digital skills for all citizens	Making use of Big Data for CAP monitoring Broadband rollout in rural areas	Connect Scale-up Modernise Reskill and Upskill 20% digital	Leverage private capital for investments in SMEs, research, digital, infrastructure, skills...

DIGITAL EUROPE Programme related topics:

- Common European Agricultural Data Space
- Agri-Food Testing and Experimental Facilities
- European Digital Innovation Hubs
- Advanced Digital Skills

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Common European Data Space for Agriculture in a nutshell

- To provide a secure and trusted data space to enable the agriculture sector to transparently share and access data

- Preparatory actions(Coordination and Support Action)



- AgriDataSpace: 2M€ - 18 months from 1st October 2022 – 15 partners, representing 10 MS
- <https://agridataspace-csa.eu/>

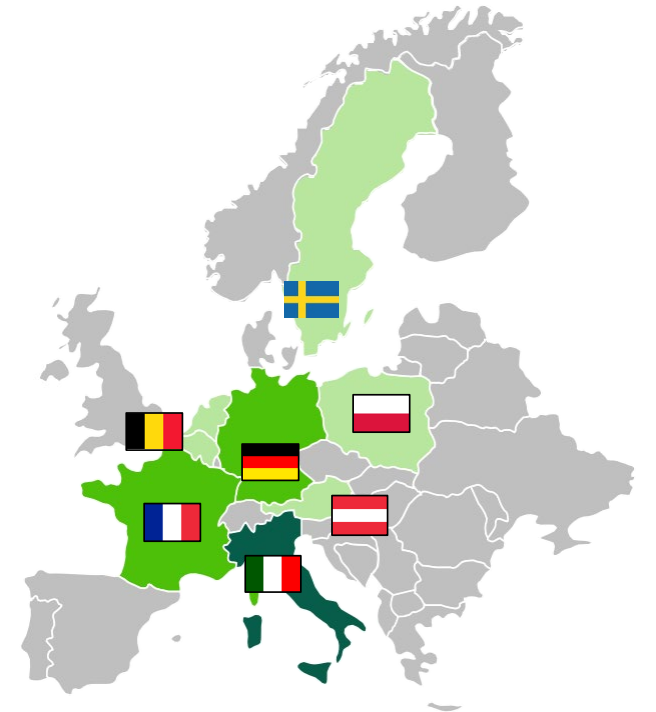
- Inventory of data sharing platforms
- Design approach
- Assessment of the Code of Conduct
- Multi-stakeholder governance scheme
- Business models
- Production of a blueprint for the implementation of the data space

- Implementation Action to be called in 2024 under the DIGITAL programme

Agrifood TEF

TEF Concept: WORLD CLASS REFERENCE
SITES FOR EXPERIMENTATION AND
TESTING AI

- FBK coordinates a consortium of 25 beneficiaries
- **KPIs:**
 - 5000+ TEF users served throughout grant period
 - Min 75% SMEs
 - 250+ different TEF services
 - 1000+ AI and robotic solutions brought to market
- **Regulatory sandboxes:** Developing framework for setting up supervised regulatory sandboxes, in particular for AI & May contribute to developing codes of conduct, standards; builds on Agri dataspaces
- **Start offering services** within first year
- **60€ million budget for 5 years**
- <https://www.agrifoodtef.eu/>



EDIH – European Digital Innovation Hubs

A one-stop-shop for digital transformation

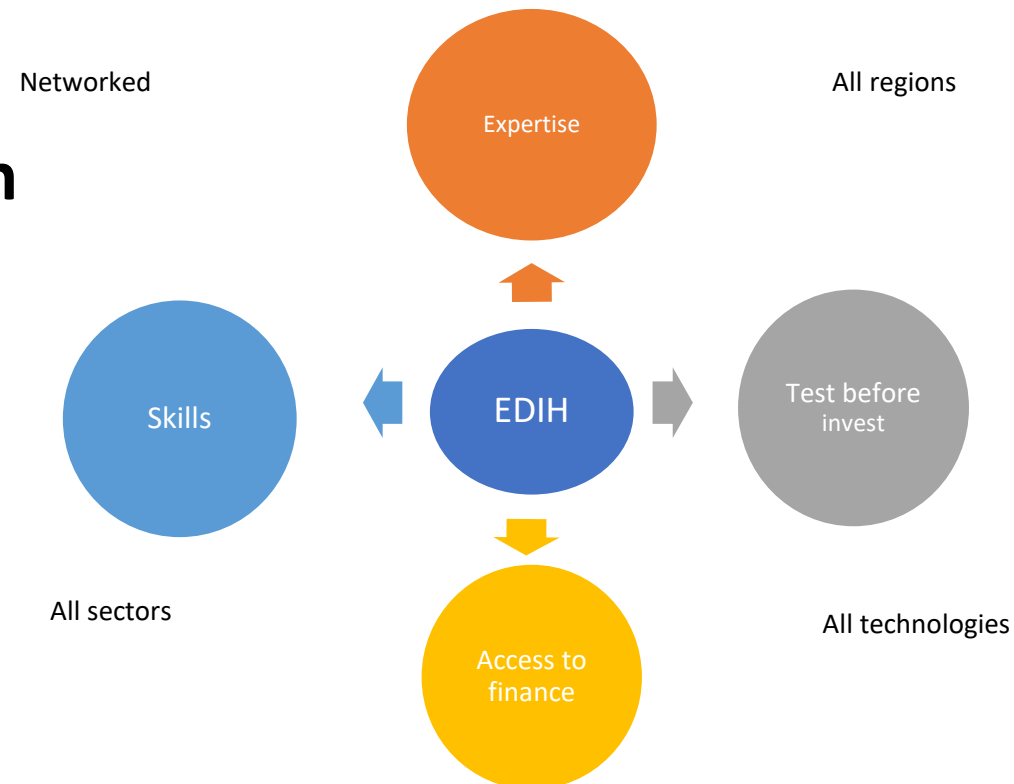
- EDIHs advice on:
 - how to digitally transform the business
 - technologies
- EDIHs access to technologies in order to test before investing
- Liaison to local businesses which provide digital technologies and technology services
- Training
- Support in accessing finance



54 EDIHs active in agriculture sector
In 19 countries

[EDIH website](https://ec.europa.eu/edih)

<https://ec.europa.eu/edih>



EDIHs play a central role in the Digital Europe Program to stimulate the broad uptake of Artificial Intelligence, High Performance Computing (HPC) and Cybersecurity.

DIGITAL advanced digital skills action – calls for Specialised education programmes in key capacity areas

2021

8 projects

– [link](#) to the projects
(list at the end of the page)

2022

8 project selected –
in Grant agreement
preparation

2023

Call - to be published - September

Type of action: Lump sum grant

Budget: EUR 30 million,
max 10 mio per project

EU co-financing: 50%

Project duration: 48 months

2024

Next call publication: September
2023

([Search Funding & Tenders \(europa.eu\)](#))

Info day – October 2023

Priority key digital areas

Artificial intelligence

Blockchain

Cloud computing

Cybersecurity

Data

Extended reality

Internet of things

Microelectronics

Photonics

Quantum

Robotics

Sectors for
interdisciplinary courses

Agriculture

Automotive industry

Energy

Finance

Health

Law

Media and culture

Manufacturing

Sustainable and
autonomous mobility

Space



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Panel discussion

Ms. Maria Coduti

EC-CNECT G.1 Data policy & innovation

Dr. Ovidiu Vermesan

Foundation for Industrial and Technical Research
(SINTEF), Norway

Mr. Kevin Doolin

Walton Institute's Applied and
Commercial Research Activities, Ireland

Mr. Patrick Majcen

Austrian Chamber of Agriculture, Unit for Legal and
Environmental Policy, Austria

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Breakout session 5: *Co-creation*

Digital and Data technologies in agriculture: R&I for sectoral transformation

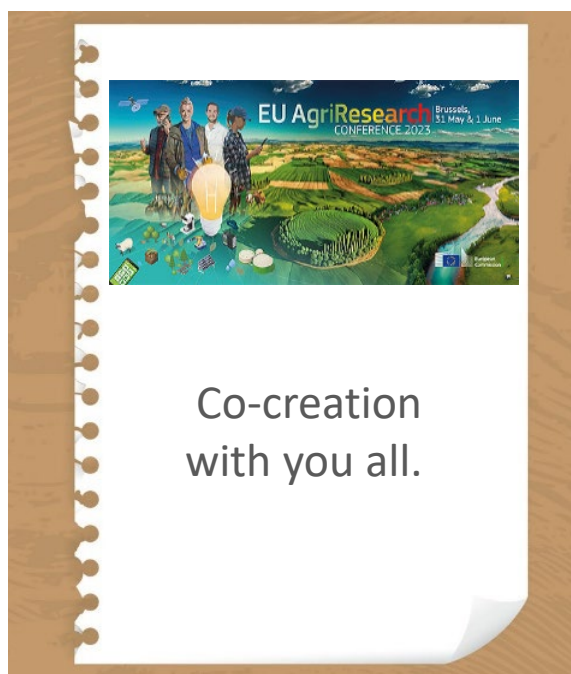
- *Work in 8 groups on flip-charts*
- *Facilitators will guide the discussion*
- *Duration: 40 mins*
- *Reporting back*



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Your ideas are essential for Horizon Europe and beyond

HE Cluster 6 Food, Bioeconomy, Natural Resources, Agriculture and Environment and the Mission 'Soil Deal for Europe'



Strategic Plan 25-27

Work Programme(s)
2025 to 2027

Next EU R&I Programme and CAP
after 2027

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Co-creative discussion



Participants, have your say!

Key guiding questions

1. **Green:** What are the main R&I needs to enable the agricultural sector to engage with and fully exploit key elements introduced/ reinforced under the Strategy of Data, including data spaces, Data Act, and Data Governance Act?
2. **Orange:** What are the main opportunities for R&I in agriculture introduced/ reinforced through the European Strategy for Data?
3. **Pink:** What needs to be done/ which mechanisms need to be deployed to implement the R&I activities identified under the two previous questions in the public and private domains?
4. **Yellow:** What has already been achieved by the innovation ecosystem to exploit the potential of data for the agricultural sector?

Approach

1. Discussion of the four questions in the given order in the groups
2. Use post-its in accordance with the colour assigned to one question (e.g., green post-its for Question 1)
 - Use capital letters
 - You may note your background/ sector, e.g., R&I, industry, policy
3. After discussion Questions 1 and 2, **“vote” on priority R&I needs and opportunities**, using sticky dots (1 persons has 2 x 2 votes)
4. After discussion Questions 3 and 4, **“vote” on priority activities**, using sticky dots (1 persons has 2 votes; no voting on Question 4)
5. **Report back** on priority R&I needs and opportunities or on priority actions in **1 minute per group**



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THANK YOU