# Agriculture Data Space Event 6 September 2022

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## Welcome & Opening

Francesco Bonfiglio – CEO, Gaia-X



Overview of Agriculture dataspace in Europe & Needs and challenges of agriculture-food sector – representative of what's happening in Europe

Moderator: Jurgen Vangeyte, Scientific Director, ILVO (Flanders Research Institute for Agriculture, Fisheries and Food)



### Gaia-X for farmers: great potential!

#### Peter Paree – ZLTO / Copa-Cogeca (this afternoon: Daniel Azevedo – Copa-Cogeca





european agri-cooperatives

#### Zuidelijke land en Tuinbouw Organisatie Southern Farmers and Horticulture Organisation

- South NL: 13.000 members, 9.000 farms
- NL: LTO: 50.000 members
- Lobby, Advice, Innovation;
  on:
- ✓ Interactive regio processes
- ✓ Sustainable supply chain
- ✓ Data and Technology
- ✓ Energy & climate
- ✓ Circularity & healthy soil
- ✓ Earnings models
- ✓ Resilient healthy plants & animals





european farmers

#### Created in 1958

- 22 million European farmers and family members
- 60 full members from the EU Member States and 36 partner organisations

# cogeca

european agri-cooperatives

Created in 1959

22,000 European agricultural cooperatives

**35** full members from the EU Member States, 4 affiliated members and 36 partner organisations

In **1962**, a joint Secretariat was created, making it one of the largest and most active organisations in Brussels for the past **60** years.

- Cross sectorial support decision making systems, AI support; data quality;
- Transparency and Trust on Data Sharing, Improve data access by farmers;
- Infrastructure:connectivity & interoperability, reliable, secure;
- Digital Skills and Jobs Advisory and Training;
- Access to talent and generational renewal
- Access to investment, financing, capacity building;
- Innovation , research starting in the farm...
- Innovative friendly regulatory framework (e.g. drones)
- Fair, transparent, and balanced agri-food value chain: Consumer and Market

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#### Key Take aways – Agriculture Data Space

- build on the experience of Code of conduct. Data Governance, Data Act
- Critical for farmers: access to data (agronomic, etc) Consent of the farmer, digital identity, EU data & EU rules, abusive terms, Public interest
- Facilitate data sharing, interoperability & portability for farmers
- provide the means to farmers to manage& valorise their data
- Hubs facilitate datasharing: JoinData, DjustConnect, Agdatahub
- EU projects (FAIRshare, SmartAgriHubs, NIVA4Cap)



- Important role of agri-cooperatives
- Farmers to benefit from the value generated by sharing data.



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#### Thank you!

Peter Paree, project leader, ZLTO

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#### Agricultural industry perspective

#### Klaus-Herbert Rolf, Head of Public Aiffairs, CLAAS KGaA

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For CEMA there are two main focus points to create trust for data sharing among stakeholders:

- Code of conduct on data rights, placing farmers at the center but also protecting innovation potential of companies
- Product compliance on safety and security including CyberSecurity and data related legislation.

<u>Industry</u> wants to <u>collaborate</u> on the digital tools/architectures to <u>ensure</u> that <u>farmers'</u> can <u>execute</u> their <u>rights.</u>



There is need for a face-2-face discussion on data to ensure it is a benefit for all and above all for farmers.

A first step is to define better the data.

E.g. from a combine harvester there might be 200 datasets but 5 are really of interest to the farmer's business.

It is about the knowledge within data.

It is also about ag process optimization where machine producers are data miners and

farmers have the knowledge on where to mine for data.



Collaboration is necessary to identify the 100 top data sets that can be used for B2B - B2G data exchange. Each country/region that has a GAIA-X hub in place could decide what data would be exchanged or be necessary.

Such a data list needs to be embedded in a structured trustworthy flow. Further, the necessary interoperability networks need to be worked out.

Digital standards should be based on the agriculture community's needs, and for the B2G business, we need one standard for the European Union.

At the end we all need to collaborate and we all need to come out of our comfort zone.





- Collaboration and research free from any bias.
- A data list must be embedded in a structured trustworthy flow; for more benefit for all stakeholders, we need interoperability networks.
- Safety standards are non-negotiable.
- In the end, we all need to collaborate, and we all need to come out of our comfort zone



#### Thank you!

Klaus Herbert Rolf

Head of Public Affairs





#### Academic, researchers perspective

#### Marko Turpeinen, CEO, 1001 Lakes Raffaele Giaffreda, Chief IoT Scientist, Fondazione Bruno Kessler (FBK)



## Fair data economy in agriculture

Marko Turpeinen – CEO, 1001 Lakes



## Research perspective on agri data spaces

**Raffaele Giaffreda**, Chief IoT Scientist, Fondazione Bruno Kessler (FBK)

#### **Agricultural Data**



- How do I collect it?  $\rightarrow$  technology
- Why do I collect it?  $\rightarrow$  improve business, policies

## **FARMTECH LANDSCAPE 2020**





# The big challenge for Ag R&I Communities - fragmentation

~ / / / / /





# ...data value within silos too limited to fuel a whole new data economy in agriculture!

#### A step in the right direction...





#### A step in the right direction...







#### Thank you!

Contact details: Raffaele Giaffreda rgiaffreda (at) fbk.eu





# Policies towards data driven societies 2030

Maria Rautavirta, Director of Data Business Unit, The Ministry of Transport and Communications - Data Department, Finland

#### **Building data structures to meet policy objectives**



#### **Structures for digital future**

#### POLICY FRAMEWORK

 Societal goals and trends: sustainability, security and safety, well being, competitiveness, accessibility
 EU policies and strategies and metering: digital strategy, data strategy, AI white paper, strategy on sustainable and intelligent mobility
 National strategic programmes: Governmental programme, climate targets
 Implementation: principle decisions, work programmes, road maps
 Daily work: Administrative steering, budgeting and projects, R&D



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#### Case Finland: Realizing the EU 2030 targets and beyond





2

#### Finland's digital compass

Finland is a digitally welleducated country

Digital basic skills for everyone

Digital skills and competence for working life and research

Public services are human-centric and boost green transition

Interoperable digital public services

Comprehensively secure digital public services





Finland will be a global leader in data-based economy by 2030

Finland is a world-class player in the field of cybersecurity

Finnish communications, computing and server infrastructure is comprehensive and energy-efficient

World-class digital technologies in chosen areas of expertise

Growing data economy and data based value creation

Green transition based innovations and solutions form a remarkable competitive advantage for Finland

Digital skills and competence building boost business in SMEs

#### Implementation through efficient steering and coordination



#### **MINISTERIAL WORKING GROUP**

Ministerial collegium – approval of decisions before presentation to the Government Digitalisation, data economy, digitalisation of the public services, cybersecurity

#### COORDINATION GROUP FOR DIGITALISATION: DIGITAL OFFICE

Serves as secretariat of the ministerial group. Permanent, agile coordination structure. Ministry of Transport and Communication, Ministry of Economic Affairs and Employment, Ministry of Finance.

#### **Digital compass**

Finland's vision and objectives for digital transformation and developing data economy by 2030.

Implementation plan, steering mechanisms, and annual monitoring and reporting of the key results and actions.

#### Government project portfolio for digitalization

Major digitalization and data economy development projects and programmes of the ministries and government offices.

Serves also as a window to stakeholders.

#### Stakeholder engagement

Contact point for stakeholders: digitoimisto@gov.fi

Active stakeholder engagement through workshops, cooperation meetings, hearings, etc.



#### Thank you!

Twitter: mrautavirta <u>Maria.rautavirta@gov,fi</u> Digital office: digitoimisto@gov.fi



#### **Agricultural Advisory Organization perspective**

Adam Fojud, Consultancy Applications Developer, Greater Poland Regional Agriculture Advisory Center (WODR)

#### **Current state of agricultural advice**





#### **Data aggregation**

Data aggregation takes place at local level and is further provided through conventional information exchange channels to the institutions monitoring the performance of agricultural advisory services (e.g. email)

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nazwa użytkow	ika	
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#### **Needs and challenges**



Aggregation of dictionary data. Centralized data source.

- Plants
- Crop varieties
- Agrophages (pests, diseases, weeds)
- Plant protection products (trade names of authorized products, active substances)
- Fertilizers



Instytut Uprawy Nawożenia i Gleboznawstwa Państwowy Instytut Badawczy







Aggregation of agricultural and advisor essential data. Centralized data source.

- Meteorological data
- Drought data
- Sowing data
- Agricultural parcels (spatial data)



Instytut Uprawy Nawożenia i Gleboznawstwa Państwowy Instytut Badawczy




# **Needs and challenges - current state**





Access to data through sources available e.g. on the websites of institutions holding the data

# **Needs and challenges - target status**





Access to data via a central access point offering, among other things, programming interfaces for slave systems, e.g. local ODR systems



# OBJECTIVE: to integrate dictionary data and data on a single platform providing data using standardized methods

# **Aggregation projects - European level**





The H2020 DEMETER project is a large-scale deployment of farmer-driven, interoperable smart farming-IoT (Internet of Things) based platforms.

Wielkopolska Agriculture Advisory Centre is one of 60 partners. In two pilots we integrate eDWIN advisory platform with Demeter tools and components:

- AIM Agriculture Information Model
- Benchmarking enablers
- Apiary management system

# **Aggregation projects - central information system**

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## Thank you!

Adam Fojud adam.Fojud@wodr.poznan.pl +48 513 952 807





# European Commission vision and mission towards Agri data space

**Doris Marquardt**, Programme Officer, European Commission, DG AGRI



Mission and vision towards the Common European Agricultural data space



#DigitalEuropeProgramme

Doris Marquardt, AGRI/F2 Joël Bacquet, CNECT/E4 6 September 2022



Rules for access and use of data are fair, practical and clear & clear data governance mechanisms are in place

Benefitting from the second wave of industrial/ business data

**GDPR** 

DIGITAL ROGRAMM

DIGITAL EUROPE PROGRAMME	European Strategy fo	or Data – Legal instr	uments		
Nov 2020 Data Governanc Act	e Ensure <u>TRUST</u> in data transactions.	Public sector data, private sector data a personal data voluntarily made availabl holders.	and le by data		
Dec 2020 Digital Market Act	Regulate MARKET POWER based on data.	Personal data and private sector data h platforms and originating from the users businesses and individuals).	neld by online s (both		
Dec 2020 Digital Service Act	Ensure a proper functioning of the single market for <b>DIGITAL SERVICES</b> .	Best conditions for innovative cross-bor develop. Maintain a safe online environment and	rder digital services to		
Q2 2022 Impl. Act. High Value Datasets	Unleash the socio-economic potential of data as a <b>PUBLIC GOOD</b> .	Public sector data of high value.	<b>Supplementary actions</b> e.g. Expert group on model countracts in B2B data		
Q1 2022 Data Act	Achieve <u>CLARITY</u> on the access and use of among the actors of the data economy.	Private sector data, personal data and co-generated (IoT) data.	sharing (deadline for aplications: 26.09.2022, see <u>here</u> )		

# Cloud Federation, common European data spaces and Al



# Benefits and challenges of sharing data in agriculture



DIGITAL EUROPE ROGRAMM

> **Businesses:** exploitation of data will enhance EU industry; create B2B marketplace; increase access to digital single market, innovative solutions



**Governments & Public authorities:** sector analysis; data can be used for policy monitoring



**Farmers:** Improve performance with decision support systems; data accessible from one entry point



Reluctance to share data: security, competition concerns, lack of trust

Dominance of large platforms:
capturing increasing share of value –avoid vendor– lock-in



Fragmentation: lack of access to (big) data and of interoperability of data

# Key characteristics of a data space

DIGITAL

- ✤ A secure and privacy-preserving IT infrastructure to pool, access, process, use and share data.
- A data governance mechanism, comprising a set of rules of administrative and contractual nature that determine the rights to access, process, use and share data in a trustful, transparent manner and in compliance with existing legislation.
- Data holders are in control of who can have access to their data, for which purpose and under which conditions it can be used.
- Presence of (vast amounts of) data that are made available on a voluntary basis and that can be reused against remuneration or for free, depending on the data holder's decision.
- Participation by an open number of organisations/ individuals in full respect of competition rules and ensuring non-discriminatory access for all participants.

# Data space for agriculture – objectives

## Main objectives of the Common European Agricultural data space:

- To facilitate the trustworthy sharing and pooling of data for the sector
- A "single data space", building on a set of data platforms
- Transparent control of data access and use
- Capitalisation of data for the sector

# Data space for agriculture – implementation

Step 1: Preparatory action: Co-ordination and Support Action (CSA)

→ selected proposal (AgriDataSpace) – Grant Agreement not signed yet – start 1<sup>st</sup> October 2022 – expected outcomes:

- Inventory of existing platforms
- Proposed design approach based on scenarios
- Governance scheme
- Blue-print for the data space
- Interim results used for the development of the implementation action
- Input to the work of the data space support centre

Step 2: First implementation project

# →Call in 2024

PROGRAMM

# Way forward towards a Common European Data space for Agriculture

- We do not start from scratch build on existing efforts in the sector
- Success depends on commitment of actors join forces across private and public
- Data sovereignty is crucial need for common mature and trusted tools
- Interoperability across sub-sectors and countries avoid fragmentation through common principles
- EU financial support is limited focus on actions needed to be done at EU-level achieve synergies with related initiatives

→Lay the foundation for the effective and efficient capitalisation of agricultural/ agriculture-relevant data for various stakeholders

- Data Support Center (cooperation mandatory for CSA)
- Ongoing relevant Horizon 2020 projects (stocktaking of (interim) results)
- Horizon Europe candidate partnership Agriculture of Data
- Forthcoming Horizon Europe projects, including under the calls (Cluster 6):
  - Data economy in the field of agriculture Effects of data sharing and big data HORIZON-CL6-2021-GOVERNANCE-01-20
  - Upscaling (real-time) sensor data for EU-wide monitoring of production and agri-environmental condition HORIZON-CL6-2022-GOVERNANCE-01-11
- Existing agricultural data platforms



- CSA achieves wide participatory approach actively involving various stakeholders and Member States
- Stocktaking and analysis of experiences gained from data platforms, interoperability approaches etc. in the public and private domains
- Stocktaking of experiences gained with the Code of Conduct of agricultural data sharing
- Active exchange between (EU funded) projects operating in the field agricultural data (will be facilitated by the Commission)
- Assessing the implications of the evolving legal framing conditions for data sharing in the sector
- Developing an approach for the data space, including governance structures and business model, in an iterative process
- Achieving **broad consensus** on the proposed approach towards the data space
- Informing policy-makers on implementation action and on possible legal implications



# Thank you!



# Contact:

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#DigitalEuropeProgramme

# The European Data strategy

DIGITAL





# Horizon Europe co-funded candidate partnership:

**Agriculture of Data** 

**Nicola Pirrone**, National Research Council of Italy (CNR) Co-chair of the HE Partnership on Agriculture of Data

# Agriculture of Data – general objectives and domains



1

#### What?

Support to **sustainable agriculture** in Europe as well as **policy monitoring and implementation** by using the possibilities that **digital and data technologies** in combination with **environmental observation and other data** offer.

#### How?

• Development of **innovative data-based solutions and services** for the private and public domain them up (geographically and from innovation to deployment) through the capitalization of data



# Agriculture of Data – Vision/intervention logic



Problem – problem driver	Agricultural production in the Inc. EU has to become more pr sustainable, while still being profitable env			creased needs for sustainable biomass roduction and production of food in a sustainable manner with improved wironmental and climate performance		e EU polici becomi mo	EU policies, including CAP and othe becoming more performance or more evidence on the impa		er EU policies, are iented, requiring act achieved		mprove systems for monitoring use of systems, biodiversity, environmental late policy actions and for supporting the Green Deal objectives	
General objective	Increase the capacities for sustainable agricultural production using the potential Increase the capacities for policy monitoring and evaluation using the potential environmental/Earth observation and data technologies offer environmental/Earth observation and data technologies offer											e potential er
Specific objective	Improve monitoring tools and the integration of data sets to assess agri-environmental/climatic conditions		Boost uptake of data/digital technologies and (EO) data-based agricultural applications for tailored, end-user oriented data- based solutions		Improve climate adaptation and resilience of agriculture through promotion of EO environmental and other data and data/technology applications and minimise undesired impact		on and rough S hental ins and g hact	Synergies in the developmen utilisation of data-based solutions for agriculture and policy monitoring/evaluatio		Facilitate (re)use of EO, environmental and other data for tools/services adopted by end- users		
Operational objective	Facilitate (re)use and sharing of data from different sources of data	Develop/ implement/ maintain common monitoring/evaluati on approaches	Dev cur EO and inn	velop novel/build on rrent approaches for data technology use, d explore transfer of novative methods	Dev solu the to a to c	elop data-based utions to support agricultural sector dapt production limate change	Further d creation o institutio infrastru needed fo based so	levelopment/ of inal/data ctures or data- lutions	Enhanced us exploiting/ data sources public and p enabling fas based soluti	e of data and Ensure coordination and enerating new alignment of EU/ /sets/flows in the National/Regional rivate domain, programmes and cadoption of data continuum actions from i into implementation		coordination and nt of EU/ I/Regional omes and um actions from R&I lementation
Expected impact	Increased synergies/integration of actors in the digital Earth, environmental observation and agricultural communities in Europe, transforming both R&I- and economic ecosystems delivering more/ better data- based solutions to end users		in ion	Increased Enhan environmental, climate agric and socio-economic envir sustainability rever performance of and agriculture sector green		Enhanced contrib agriculture to pro environment and reversing biodiver and reduction of greenhouse gasse	nced contribution from culture to protecting ronment and halting/ rsing biodiversity loss reduction of nhouse gasses emission		Enable the sector and strengthen its capacity to adapt to climate change and meet objectives set by sustainability-related policies		o creating an ructure, to ased solutions ctor and	Strengthened capacities to evaluate the effectiveness of policies

# Agriculture of Data – Governance structure





# Specific Objectives, 1

- Improve agri-environmental monitoring and forecasting tools and strengthen capacities to assess the status of agri-environmental and climatic conditions particularly by enhancing the integration of data sets provided by various platforms/networks.
- Boost the uptake of digital Earth, environmental observations and forecasts data-based solutions, including solutions based on climate predictions and projections, and data technologies in agriculture, by providing tailored, easily accessible end-user oriented data-based solutions.
- Enable fast adoption of results by bringing together actors in digital Earth, environmental observations and climate forecasting with farmers, agronomists, policy-makers and public administration, including paying agencies and companies developing farm machinery and software e.g. FMIS (Farm Management Information Systems).

# Specific Objectives, 2

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- Facilitate use, reuse and sharing of Earth/environmental observations and climate data from existing data repositories, both public and private (where possible).
- Develop databased solutions to support the agricultural sector to take decisions to adapt production to climate change in an environmentally and socio-economically sustainable way adaptation of the agriculture decision making to climate change.
- Work towards the further development and/or creation of institutional structures and data infrastructure needed to provide data-based solutions for the agricultural sector and policymaking.
- Ensure coordination and alignment of EU/National/Regional programmes and a continuum in actions from Research & Innovation to implementation to enhance the uptake of R&I activities on digital Earth, environmental observation and forecasting data and services at European and national scales by relevant stakeholders, including businesses and farmers, to make Europe a global leader in sustainable agriculture.

# Multi-source material for SRIA



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# Expected Impacts, 1

- Increased environmental and socio-economic sustainability performance of the agricultural sector.
- Enhanced contribution from the agriculture sector to the important need for protecting the environment, halting and, if possible, reversing biodiversity loss in Europe and globally, as well as to the reduction of the emission of greenhouse gasses from agriculture.
- Contribution to create an institutional structure that would include a data infrastructure needed to provide data-based solutions for both the sector and for policy making.
- Increased synergies between and better integration of different actors (e.g. scientists, technicians, policy-makers, practitioners, businesses, farmers, end users) achieved in the Digital Earth, environmental observation and agricultural communities within Europe, transforming both the R&I and economic ecosystem to deliver more and better data-based solutions to the end users.

# Expected Impacts, 2



- Enabling the sector and strengthen its capacity to adapt to and mitigate and to meet objectives set by sustainability-related policies, considering e.g. risk analyses/indicators, such as environmental, technical, economic or social risks.
- Strengthened capacities to evaluate the effectiveness of policies (with reference to agriculture, environmental- and market-related policies and the combined potential effects of them).

# Connection to other partnerships



- Agroecology
- Animal Health and Welfare
- Food systems

# Agriculture of Data – Timeline

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## Thank you!

Contact: AGRI-DATA-RI-PARTNERSHIP@ec.europa.eu



# AgriDataSpace

# Building a European framework for the secure and trusted data space for Agriculture

Sébastien PICARDAT, CEO, Agdatahub

## The consortium





# **Consortium management and decision-making chart**





Actors who can participate in the consultation process

=> Applications are open to join the committee.

# Work Plan and interconnections between WPs




#### **Project overview**



#### Preliminary project Agridataspace

18 months duration

- Start date: 10/2022
- End date: 03/2024

#### **Data space deployement** 24 months duration

- Start date: 2024
- End: 2026

#### **Preparation of use cases deployement:** arable crops / livestock traceability, credit carbon valorization, animal genetic



#### Thank you!

Sébastien PICARDAT - CEO sebastien.picardat@agdatahub.eu





# Present direction and main ideas from Agriculture position paper

Jürgen Vangeyte – ILVO Stefan Stiene – Hochschule Osnabrück

#### Who are the initators?



GAIA- X Working group on agriculture GAIA-X: Data Spaces Business Alliance (DSBA) launched by BDVA, FIWARE, GAIA-X & IDSA . . .

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### Why did we write a position paper?

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- Align our vision on the Common European Agriculture Dataspace within the group and promote it within GAIA-X
- > Make clear that the Agri-Food sector:
- Fully supports the concept of the Data Spaces
- Knows which challenges needs to be addresses to develop a federated distributed system of existing data platforms into a Data Space
- Can Provide agri-food dataspace existing use-cases that help to understand how the Agri-Food sector could benefit from GAIA-X in the future.







- Available data are only valuable when shared
- Entire chain from field to fork
- Willingness to share is crucial to keep innovating



# Challenges

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### Common European Agricultural Data Space



- Definition and development of federated governance structure
  - that will define the scope, the openness, the technical interfaces and the 'federated' services
  - with the right balance between
    - sufficiently open so that companies are prepared to come up with joint innovations through data sharing
    - sufficiently protected so that they still retain control over their own data and intellectual property
  - to determine the adequate legal, organizational, semantic, and technical interoperability levels, ensuring innovation and scale-up of data sharing at the EU level, preventing lock-in situations, enabling new ways of coordination and value creation.

### Common European Agricultural Data Space

- gaia-x
- In agriculture, already various data intermediaries and companies that cooperate with them, exist
- => regional data spaces to be considered as existing regional actors for a future EU-wide data space
- => could be connected based on the Gaia-X Federated Services.
  - unified identity management
  - sovereign data exchange including data usage control possibilities
  - federated catalogue to identify the actors, services, and available data items in the network

- the enforcement of data sovereignty for the farmer as data originator according to the European Code of Conduct on agricultural data sharing.
- to provide the farmer with the necessary tools to give consent on the use of the data by a network of data intermediaries and to stay in full control of his data and, if desirable also add independent, federated storage solution for the farmers



- The non-technical layers are equally important. Like a unified compliance framework based on Gaia-X. Hence all Gaia-X federated services are needed and will be integrated to set up the common European agriculture data space.
- The common European agriculture dataspace should ensure data sharing over the full supply chain from Farm to Fork.

#### How do we proceed?

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- Engaging with already existing platforms and their use case that are already building towards a common agricultural dataspace.
- Identify and understand their common needs and challenges so Gaia-X can support them in taking steps toward this common agricultural data space.
- As soon as there are concrete GAIA-X compliant technical solutions for building dataspaces. Agri-Food examples based on these technologies will be evaluated and added to the position paper.







#### Thank you!

Contact details



#### Legal environment: Data Acts and Agri-data space

Natalie Bertels, Valorisation manager, imec-CiTiP-KULeuven



**CENTRE FOR IT & IP LAW** 



# Legal environment: Data related Acts and Agri-Data Space

Natalie Bertels www.citip.be **GOAL**: Governance of Data and of Data Spaces, fit for purpose in sectorial context, promoting cross-sectorial interoperability

Data governance European style:

#### Create the right conditions for people, companies and authorities to share data in a secure, fair, trust creating, innovation supporting manner

Data governance is broadly used and a **multi-dimensional** concept (technical, organizational, legal, ethical) that requires **interdisciplinary** efforts and **stakeholder engagement** to develop a **forward-looking** approach that is able to tackle **current and emerging** 

Working definition A system of rights and responsibilities that determine who can take what actions with what data

# Identify CHALLENGES of different nature (legal, market, technical, )

- Legal: multitude of legal frameworks related to data, not (yet) one framework related to data as economic resource,...
- Technical: search for interoperability and data standards,...
- Market: position of farmer, data fragmentation, hurdles for new innovative data-driven products and services,..

### **TOOLS: legacy frameworks & data**





- Context-specific regulation: e.g. determination of personal data
- Fragmentation of jurisdiction
- Many entitlements on
   same data(set) + arising at different phases (collection / analytics / etc.)
- Hindrance to scalability of data exchange solutions
- 'one-size-fits-all' possible?

### Data Strategy of the EC

Horizontal legislation

gaia-× (sector-) specific legislation



**Big Five** 



#### Data Governance Act (DGA)

Governance framework for data access and use, increase trust among actors in the data value chain and promote availability of data.

#### Data Act (DA)

New substantive rights on data (allocation of access and/or control)

#### AI Act (AIA)

Regulation of different uses of AI with the aim of increasing trust in AI technology and promote their development and use in accordance with EU values

#### Digital Markets Act (DMA)

Regulation of "gatekeeper" companies with the aim of ensuring a fairer digital market

#### Digital Services Act (DSA)

Reponsibilities and obligations for service providers in the online environment

# The way forward



- Navigate legal complexity towards the goal of legal interoperability
  - scope, definitions, actors,..
- Assess impact of legal concepts on challenges at sectorial level
- Address difficulty to scale, horizontal vs sector-specific
- Support operationalization of legal and ethical frameworks
- Engage all stakeholders in constructive dialogue

Thank you for your attention!

#### Any questions or comments?

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# **Gaia-X Federation Services**

Andreas Weiss Gaia-X Lead at eco Association of the Internet Industry

#### **Definition Federation and Federation Services**



- Federation
  - The conceptual model of Gaia-X enables and promotes the creation of the so-called Gaia-X Federations as a conceptual component.
  - Such Federations are self-determined ecosystems, where individual <u>Participants</u> join. A Federation refers to a loose set of interacting Participants that directly or indirectly consume, produce, operate or provide related Services Instances.
- Federation Services
  - The Federation Services are to be seen as the implementation of a toolbox providing for the minimum technical requirements to empower a Federation to become operational. The first key areas are:
    - Identity and Trust
    - Federated Catalogue
    - Data Sovereignty Services
    - Compliance Services

gala-x Gaia-X Federation Services (GXFS) Gaia-X Ecosystem Kickstarter 1 December 2021 on the basis of a decisio

#### Alignment of Gaia-X Federation Services to the key principles

Requirement	Relation to the Federation Services
Interoperability	<ul> <li>The Federated Catalogues ensure that Providers offer services through the whole technology stack. The common Self-Description scheme also enables interoperability.</li> <li>A shared Compliance Framework and the use of existing standards supports the combination and interaction between different Resources.</li> <li>The Identity and Trust mechanisms enable unique identification in a federated, distributed setting.</li> <li>The possibility to exchange data with full control and enforcement of policies as well as logging options encourages Participants to do so.</li> </ul>
Portability	<ul> <li>The Federated Catalogues encourage Providers to offer Resources with transparent Self-Descriptions and make it possible to find the right kind of service that is "fit for purpose" and makes the interaction possible.</li> <li>Common compliance levels and the re-use of existing standardssupports portability of data and services.</li> </ul>
Sovereignty	• Identity and Trust provide the foundation for privacy considerations as well as access and usage rights. Standards for sovereign data exchange enable Usage Policies. The Self-Descriptions offer the opportunity to specify and attach Usage Policies for Data Resources.
Security and Trust	<ul> <li>The Architecture and Federation Services provide definitions for trust mechanisms that can be enabled by different entities and enable transparency.</li> <li>Sovereign Data Exchange, as well as Compliance concerns address security considerations. The identity and trust mechanisms provide the basis. The Federated Catalogues present Self-Descriptions and provide transparency over Service Offerings.</li> </ul>

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### Federation Services and Data Spaces

- Federation Services
  - On the lowest level, Federation Services can help to organize a data space in terms of participant and service management.
  - Federation Services can help to
    - Find Data Services
    - Contract Data Services
    - Report Data Exchanges
- Data Spaces
  - Specific Data Space Management Services
  - Technical Enforcement of Usage Policies where applicable
  - Harmonized and interoperable Data Connector Services



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### State of play GXFS

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- What is GXFS?
  - Minimum set of services, necessary to operate Gaia-X Federations
  - Output will be technical specifications and baseline open-source code
  - After initial promotion continuous improvement through community-driven work on the open-source code via GitLab
  - The Gaia-X Association will maintain the developer repository during initiation
  - Further hand over to Eclipse Foundation as Community Project is planned
- What is GXFS not?
  - A ready to go product
  - A set of services operated and monitored by the Gaia-X Association

### **GXFS** Deliverables by Q3/2022



#### **Federated Catalogue**

Repository where participants can find other participant's information, service offerings in the shape of self-descriptions

Core Catalogue Features

Self-Description of Participants & Services

#### **Identity & Trust**

Based on the Self-Sovereign Identity (SSI) Concept these services provide the ability to handle decentralized identities and digital trust establishments

- Authentication/Authorization
- Organization Credential Manager
- Personal Credential Manager
- Trust Services

#### Sovereign Data Exchange

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These services enable transparency and control over how data is used

- Data Contract Transaction Service
- Data Exchange Logging Service

#### Portal & Integration

#### The Portal serves as a sample integration layer

Portal –

Orchestration –

#### Compliance

Legal Regulation & Policies framework

- Onboarding and Accreditation Workflow
  - Continuous Automated Monitoring -
    - Notarization Service API –

## GXFS Software Components as OSS @ Gaia-X GitLab



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🗅 doc	fixed test docs	6 days ago		
🗅 docker	added keycloak config	6 days ago		
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🗅 owasp	moved passwords to k8s secrets	4 weeks ago	profile-manager	
🗅 service	auth server fix	18 hours ago	proof-manager	
tests	added load tests	1 week ago	HEIM proof-manager-helm	★ 0 1 week ago

https://gitlab.com/gaia-x/data-infrastructure-federation-services

#### www.gxfs.eu





GXFS Connect 2022 | Berlin & Stream | 07.– 08.09.2022 | GERMAN SPEAKING

https://www.gxfs.eu/de/gxfs-connect-2022/



#### Thank you!





#### Thank you!

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